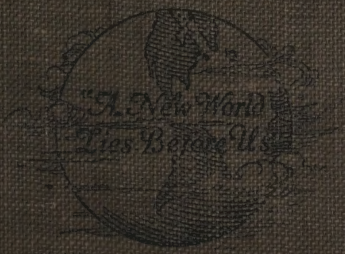
TEACHING THE NEW GEOGRAPHY

ATWOOD AND THOMAS



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TEACHING THE NEW GEOGRAPHY

A MANUAL FOR USE WITH THE FRYE-ATWOOD GEOGRAPHICAL SERIES

BY

WALLACE W. ATWOOD

AND

HELEN GOSS THOMAS

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PREFACE

This manual has been prepared as a direct help to teachers of geography in elementary schools. The educational ideals that have guided the authors are outlined; the plan of the two-book series is presented; the regional treatment of geography for the last two years of study is explained; the project and problem methods of work are fully illustrated, several problems are worked out in detail, and numerous projects are suggested. The new and progressive system of maps in Book Two is described and the plan for picture studies is explained. The keys to the Problems and Review Questions and to the Map Studies, with accompanying teaching helps, will give to teachers direct aid in the preparation of every lesson in Book Two.

The treatment of geography in Book One is for young children and is therefore very simple. In Book Two the pupils are introduced to a more advanced study of geography. A new plan of work is followed, new maps are presented, and little by little the students acquire a scientific view of the subject. Book Two contains a large amount of useful information in maps, pictures, text, and Appendix and is, therefore, not a mere textbook but a reference book, rich in geographical information which may be used in working out problems and projects.

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Teachers who desire help from the authors in addition to what is given in this manual are invited to address their inquiries to the Boston office of the publishers.

WALLACE W. ATWOOD

CLARK UNIVERSITY

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TEACHING THE NEW GEOGRAPHY

I

THE POINT OF VIEW

There was a time when the teacher would say, "Children, close your books and we will have our geography lesson." Books would be promptly closed, hands would be folded, and the memory recitation would begin. States would be bounded, capitals named, peninsulas and islands defined, places located, all by the unthinking, memoriter method. Fortunately, that time has passed. Today the progressive teacher says, "Children, open your books and we will have our geography lesson." Problems are formulated by the pupils; maps, pictures, and text are eagerly consulted; and geographical facts are learned through the interpretative method. Wholesome and intelligent discussion between pupils and teacher ensues, and real training in accurate observation, clear thinking, and reasoning power is accomplished.

The authors of the Frye-Atwood Geographical Series believe that the study of geography in the elementary-school stage should do more than provide pupils with a knowledge of geographical facts as such, — it should give them a real understanding of fundamental geographical principles and a definite power of interpreting their effect on human life. These are the educational ideals which have guided the

authors in their preparation of a progressive series of textbooks for use in a progressive course of study in geography.

In the past, elementary-school geography has, at different times, stressed various phases of the subject. Years ago it was chiefly place geography and political geography; later, physiography, or physical geography, became the point of emphasis; and in recent years much of the emphasis has been laid on the economic and commercial phase. Each one of these particular points of view is more important today than ever before, but courses of study based on any one of them as the focal point have proved themselves inadequate and incapable of giving a comprehensive and sound geographical training. Fortunately, we have now learned to teach the facts of place, political, physical, economic, and commercial geography in association with the more vital, more interesting, and more thought-provoking topics of *human geography*. In other words, we have come at last to focus the study on people, not things.

We appreciate more keenly than ever before that geography has a unique and serious responsibility in training young people to know their own country, its physical features, its climate, its resources, the people, their ideals, and their problems, and, furthermore, to know the other countries of the world with their different peoples, their different ideals, and their different problems. The time has come when our future growth and well-being as a nation will depend largely upon our judgment in dealing with foreign peoples. We must acquaint the children in our schools with the conditions that influence the lives of people in this country and in other countries of the world, to the end that we may develop citizens who will sympathize intelligently with all the peoples

of the world. The keynote in our teaching of geography must be training for American citizenship and for broad-minded, noble citizenship in the world. Geographic knowledge must be used as a tool to help mold the growing minds of children. It must strengthen those minds and increase their power if it is to develop citizens with good judgment and intellectual independence.

II

THE PLAN OF THE SERIES

The Frye-Atwood Geographical Series has been planned on two fundamental ideas: first, that human geography — the effect of geographic environment on the lives and activities of people — shall be the basis of the study; and, second, that the series shall be truly progressive in the sense that all unnecessary repetition shall be avoided and that the last two years of the study shall present the geography of the continents and countries from an entirely fresh and new point of view, giving full scope to the developing powers of the grammar-grade pupil.

BOOK ONE

Book One introduces the child to his first ideas of contrasted types of life in different parts of the world through a series of imaginary journeys in seminarrative style. In these journeys the little child gains a few simple impressions of child life in other lands, and comes unconsciously into the realization that varying conditions of location, topography, climate, and resources lead to widely diverging ways of living. These journeys also serve another very important purpose: they stimulate the child's imagination and fire him with enthusiasm to learn more about the people of other lands, thus winning his interest in the study of geography.

Following the journeys, a considerable amount of time and space is given to a study, in simple, easy terms, of the basic

facts of surface features, soils, water bodies, air, and the way in which all plants and animals depend upon these features of the earth for their life. The simplicity of this treatment and the fact that each topic is related to something that is known and vital to the child make it possible for him to really understand the subjects and to take a definite, personal interest in them.

The next step is instruction in the making and reading of maps. This is the child's first contact with the subject of representative geography, and the text work should always be supplemented by actual practice by the children in the drawing of maps. The teacher should not begrudge a generous amount of time and effort devoted to making sure that every child in the class really understands what a map is for, how it is made, and how it should be read. Maps are the basic tools of geography, and if they are not thoroughly understood at the outset, the effectiveness of the future study of geography is seriously jeopardized.

When the first principles of map-making and map-reading have been mastered, the children are ready to take up a simple study of the earth as a whole; they now make definite use of maps for the first time. The historical approach is used as the vehicle for this beginning study of the earth, and through the stories of Columbus and other explorers the pupils gain their initial concepts of the form and size of the earth, the hemispheres, land and water bodies, and the seasons. In this study the globe should be used freely by the teacher and by the pupils themselves. After the globe is thoroughly understood, the pupils should study the maps of the hemispheres in their book, and the teacher should not fail to make sure that each child understands how the

map on the flat page is related to the map that is pasted on the globe.

From this point on, Book One takes up the study of the earth by continents, beginning with North America. The treatment of each continent and each country is simple; only the most important geographic facts are noted, and the emphasis throughout is on the human phase of the geography. The maps and pictures are a vital part of this study, and the children should be taught to give as much time and attention to these features of the book as to the text. Now, for the first time, maps showing the elevation of the land are presented, as well as political maps. The teacher's responsibility is great in this connection. She must make sure that her pupils fully appreciate what each type of map represents and how each map contributes to the understanding of the continent under consideration. The pictures should also be studied carefully, and the children should be asked to tell what they can about each picture in addition to what is written beneath it.

Map studies are provided throughout the book, and these should be made a vital part of the geography lessons. The most effective way to use them is to conduct an open discussion in class, each child with his map and map questions before him. The teacher should supplement the map studies given in the book with others of her own devising, and should never bring the study of a given map to a close until she feels certain that it has fulfilled its maximum usefulness.

By the time the study of Book One has been completed, the children will have gained a sound elementary knowledge of the basic facts of geography, which will provide them with the necessary foundation for the new and more scientific study of the subject in the upper grades.

BOOK TWO

Book Two takes up the detailed study of the United States and the other countries of the world from an entirely new standpoint suited to the growing powers of pupils in the upper grades. Human geography is, as always, the focal point, but the basis of treatment is regional geography. The use of this method accomplishes two important objectives. It gives a freshness and newness to the study that do away with the natural boredom that any normal child feels when his last two years of geography are nothing more than an amplified repetition of his first two years. Furthermore, regional geography provides the soundest basis for the application of the problem and project methods, and therefore makes possible the fullest use of the child's interpretative powers, training him to think clearly and to reason intelligently.

Regional geography is simply the term that has come to be applied to the study of geography on the basis of natural regions, and may, for purposes of clear definition, be contrasted with political geography, or the study of the subject on the basis of political units. There is, however, a close association between the two which will be pointed out in a later section of this Manual, and the study of regional geography by no means presupposes a neglect of political geography.

A natural region is a unit of geographic environment, — an area throughout which the geographic conditions that help to determine life do not differ greatly. It is, therefore, a unit in which the life of the people as a whole can be studied as a *type* of life response to a given set of geographic conditions. The United States, for example, is made up of a number of distinct natural regions, as shown on the map,

pages 2–3 of Book Two. In each of these regions the life of the people depends to a large extent upon the particular conditions of topography, climate, and resources which the region affords. The regions form the environmental background of our national life, and before children can gain an intelligent understanding of the varied activities in the different parts of the country, they must gain a broad view of the distribution of the regions and of their relations to one another. For this reason Book Two opens with a study of the natural regions of the United States, and through a careful study of each region the pupils build up a synthetic picture of the country as a whole, its highlands and its lowlands, with their respective variations in climate and resources. When the regional picture is complete, the study of the states as individual political units becomes a fascinating study in interpretation. Each state is taken up from the standpoint of the advantages and disadvantages of the regions of which it partakes, and thus the actual activities and interests of the people are seen to have a firm foundation in geography.

Each natural region is a unit of study. There are certain advantages in opening the study of American geography with a consideration of the regions along the Atlantic coast where the first permanent settlements by white people were made, and proceeding westward, following the sequence of American history. There are, however, very sound reasons for taking up with any class the study of its own region first. This plan leads the pupils more directly to an understanding of what a natural region is; after their own region has been studied, the order from the east to the west may be followed. Some other order may be selected, if necessary, to meet the demands of the local course of study. Thus, in the

upper Mississippi Valley, pupils may well open their work in the study of the United States with a study of the Central Plains, or, on the Pacific Coast, with a study of the Pacific Mountains and Lowlands.

After the study of the United States has been completed, the regional study of Canada is undertaken, and immediately pupils recognize the fact that the natural regions of the United States do not terminate at the international boundary line, but extend northward into Canadian territory, and that life response in the provinces of Canada can be correlated with life response in the United States on the basis of regional conditions. Thus the knowledge that has been gained in the study of our own country is immediately useful in studying our neighbor to the north.

Similarly, the study of Mexico becomes an intelligent exercise in correlation and interpretation when the pupils see to what extent the regions of the United States extend southward over the Mexican boundary line. Climatic differences arising from lower latitudes are introduced as qualifying factors and become of real interest as modifiers of conditions of life in similar regions farther north.

The study of North America proceeds in a synthetic way until the full picture of the continent has been built up and pupils have come to see in a broad way how the great natural regions mold the life of the people. When South America, the next continent to be studied, is approached, pupils are ready to make a study of it first from the regional aspect and then from the viewpoint of the political units. The regional background gives the fundamental basis for an interpretation of the life of the people in each country. The various types of regions are correlated with similar types in

North America, and the pupils' powers of reasoning are stimulated and developed by making the necessary contrasts and comparisons in the correlated regions of the two continents.

Each continent is taken up in turn in this same way, and to each new problem relating to the effect of regional conditions upon people the pupil applies the knowledge that he has gained of life response in similar regions in other parts of the world. Thus he makes constant use of all his foregoing study, and comes to see the big, fundamental geographic principles which apply to human life the world over. This method of study is mentally economical in that everything that is learned is of definite use; nothing is wasted, and facts are not unrelated, ill-assorted things, to be learned for examination purposes and then promptly forgotten.

When the study of all the continents has been completed, Book Two sums up the facts of world geography. All of these facts have been encountered in places where they have been pertinent to the particular region or country under discussion, and have therefore been unconsciously absorbed by the students. Thus the facts of mathematical geography, usually difficult for the ordinary school child, are learned without trouble and in a way that makes them concrete, worth-while portions of his geographical education.

The last chapter of the book brings the pupils back to their own country, gives them a view of its relation to the rest of the world politically and economically (thus correlating the geographic knowledge already gained), and emphasizes the necessity for intelligent use of our great national resources. This last chapter aims definitely to instill in boys and girls an understanding of the responsibilities and the privileges of American citizenship.

III

THE REGIONAL TREATMENT OF GEOGRAPHY

Book Two employs, as the basic foundation for the study of geography, the division of the land surfaces into natural regions (see page 7), because natural regions are the simplest and the soundest organizing centers about which to group geographic facts, and the best focusing points for human geography.

During the last century thousands of scientists of many nationalities have been studying systematically the structure, surface features, and natural resources of the earth. To them we are indebted for a large fund of knowledge of the different land forms, soils, minerals, forests, waterways, water-power, and all natural resources. Others have contributed detailed studies of the climatic conditions in all parts of the world.

The facts now available have made it possible to define in a systematic and consistent way the great natural regions of the world. Book Two gives to the public the first systematic grouping of the land surfaces of the earth into natural regions. These regions as defined and presented in the physical maps constitute one of the greatest contributions ever made toward helping us understand and carry forward the study of geography. They make possible a scientific yet simple study of geography by elementary-school children.

The outstanding physical characteristics of the land determine most of the boundaries of these natural regions. There is no division of land forms more simple than that of

mountains, plains, and plateaus. The simplicity appeals to the child; the soundness and usefulness appeal to the most advanced students. Regions based on physical features can be visualized by children. They actually exist. Photographs, moving pictures, and trips through the country exhibit them. Moreover, they are fundamentally sound and based on authentic scientific knowledge.

The mountains, plains, and plateaus may be considered, for all practical purposes, to be permanent. They are modified by geologic processes, but the modifications take place very slowly. The natural regions are therefore the most nearly permanent factors in human environment and are logically the best foundation for geographical study.

In the new study of geography, however, the natural region is not taken up as a lesson in pure physical geography. It is, on the contrary, a habitat, — a unit of human environment, — and the emphasis is placed upon the human response to the geographic conditions. Each region is, in a sense, a stage upon which the actors enter from one side or the other. They come with certain traditions and certain race characteristics which determine in large part their social customs and institutions. They find themselves confronted by certain geographic conditions, favorable or unfavorable, to which they adapt themselves, seeking to make the fullest use of natural advantages and to overcome the handicaps of natural disadvantages.

To study the lives of any of these groups of actors intelligently we must study the physical features of their stage, the climate, and, finally, the resources which they may discover and utilize. Only when we understand these geographic factors can we follow intelligently the development

of the drama of human lives. The study of geography becomes, in effect, a thoughtful observation of this great drama, and we should seek to develop in students a sympathetic and understanding attitude toward the actors as they carry out their plans for making a living and for recreation. We may imagine ourselves in an airship or a captive balloon, looking down upon the actors in this drama. We may watch them as they cultivate the fields, tend the flocks, build homes, and discover and mine coal, iron, and gold. Later we may see them turn to manufacturing, building great factories, and establishing cities. They may develop agriculture to such a degree that they produce more food than they can consume. This will lead them to exchange their surplus foodstuffs for useful manufactured articles from a neighboring region. We may see a great population developing about an industrial center to which food supplies must be brought and from which manufactured products must move. The interchange of products between the natural regions in the same country establishes domestic commerce, and the exchange of commodities by the people of different nations develops foreign commerce. In time we may see the various nations of the world, with their different resources, bound together by a great network of lines of communication and trade. This will lead to international relations, — economic, political, and social.

It is sometimes convenient to subdivide a natural region into sections or subunits, based on particular occupations that may be dominant in the subunits for a time. It should be remembered, however, that the dividing lines thus drawn are quite arbitrary and may be only temporary. For example, there are no sharp lines between the corn-growing and

oat-growing areas of the Central Plains, and the line between the corn belt and the wheat belt is vague. Grazing is dominant in certain parts of the Great Plains of our country, but it is also the chief occupation in many of the mountain lands, where the ranchmen have their homes in the valleys and send their herds and flocks to the mountain pastures during the summer.

One occupation gives place to another in the history of economic development. Farming, which once predominated in New England, has given way to manufacturing; the natural region has remained the same, but man's response to geographic and economic conditions within the region and in the neighboring natural regions has led to profound changes in occupations. The history of a natural region is guided in part by local conditions, in part by the development of other natural regions within the country, and often by the growth of trade with people in far-distant regions. The only lines that will remain permanent for geographers to follow are those great natural lines which have been discovered by a careful scientific study of the surface features of the earth.

In university studies, where regional geography has long been recognized, it is not uncommon to consider climatic regions, vegetation regions, and economic regions. Each group serves a particular purpose in connection with a specialized branch of geography, but detailed study along any one of these lines demands a foundational knowledge of the great natural regions of the earth's surface. For elementary-school work these specialized regional groupings are too difficult and too complex to be practicable.

The natural regions of the United States were defined in 1895 by Major J. W. Powell, the first Director of the United

States Geological Survey. They were redefined and presented to the world several years ago by a committee of the Association of American Geographers working in coöperation with members of the Geological Survey, and the division lines then presented have stood the tests of years in guiding instructional work and geographic investigations. The author of Book Two has carried this work a step farther and, on the basis of all the available authoritative data resulting from the work of geologists and geographers in many parts of the world, has divided all the continents into natural regions on the same fundamental basis as that used by the Association of American Geographers. Thus Book Two presents, in maps and text, a study of the world on the basis of a carefully correlated system of natural regions. The outstanding characteristics of each type of natural region — young, rugged mountains, old, worn-down mountains, uplands and plateaus, coastal plains, interior plains, and valley lowlands — are broadly similar the world over, and thus constitute the six great types of human habitats.

Once acquainted with the natural-region basis for the study of geography, the pupil has made the right beginning, and he will find that basis to be sound and useful as more and more advanced studies are undertaken. The grammar-grade child takes the region as the habitat of a group of people, and gets the picture of their life as a whole, with an understanding of the main geographic factors of which it is composed. In this way he learns not only what the life and activities of the people are but the geographic causes that underlie them. The advanced student may analyze in greater detail the physical features, the climate, or the resources of some section of that region. He may

undertake an exhaustive study of the topography, the animal and vegetable life, or the human occupations. Each subdivision, however, must have a sound relationship to the study of the natural region as a whole, and the natural region as here defined becomes the fundamental guide to the understanding of the advanced and specialized studies.

The strength of regional geography as an organizing center for the work in the elementary schools lies in the fact that it presents a vivid, tangible background for children in their effort to master the principles of human geography, and that it gives them a sound working basis for subsequent studies of a more advanced type and for the formulation in later life of sane, broad-minded opinions on questions of political, economic, and ethical import.

THE RELATION OF REGIONAL GEOGRAPHY TO POLITICAL GEOGRAPHY

Man has quite arbitrarily drawn many political lines that have no relation whatever to the natural geographic lines. Political geography is a branch of history, yet it also forms a very important part of the study of geography as a whole and of human geography in particular. Political geography can be taught effectively only when closely associated with the study of regional geography. To understand the development of any nation it is necessary to see clearly to what extent it partakes of the natural resources of the continent in which it lies.

If, for example, we take up the study of France, we must first ascertain the location and present extent of the country in Europe, but we cannot proceed far with an understanding study of the life of the French people without considering

the natural regions into which their territory is divided. A French geographer would insist upon the subdivision of his country into natural regions of fundamental importance. He thinks of its geography in terms of the Central Plateau, the Paris Basin, the Upland of Brittany, the Plain of the Garonne, and so on, with their variations in topography, climate, and resources. He would point out that the natural regions of France in some instances extend into bordering countries, and that the political boundaries are a matter of history and have been changed several times. The present location of those boundaries, however, is a matter of vital importance, since they determine to what extent the valuable natural resources of the continent as a whole lie within the territory of the French nation.

There are many unsettled political boundary lines in the world today, and we may expect political geography to change from time to time. The natural regions are settled by nature for all time, forming the immovable background for the shifting political units. Only when the resources and characteristics making the regions desirable or undesirable possessions to man are understood can the efforts toward territorial expansion on the part of nations be clearly comprehended.

THE RELATION OF REGIONAL GEOGRAPHY TO THE TEACHING OF HISTORY

There is a definite relationship between geography and history, and the chain of historical events cannot be thoroughly understood unless the geographic setting is clear. Teachers should seek to correlate the subjects of geography and history in the classroom. Such correlation makes history more vivid and intensifies interest in human geography.

For elementary-school purposes regional geography is an invaluable asset as a background for historical studies. Each natural region is seen as a unit of environment, characterized by certain conditions of surface, climate, and natural resources, and becomes a well-visualized stage setting for the drama of history which has been played in the past and is being played at present.

From the broad point of view American history may be regarded as a movement of expansion from the Atlantic coast to the Pacific. As the pioneers penetrated one natural region after another they adapted themselves to the geographic conditions of their new homes, developing their economic life as location, surface features, climate, and natural resources permitted. The hills of New England, with their infertile soils, discouraged agriculture. The sea beckoned, and New England very early turned its attention to fishing and commerce. The abundance of water-power led to the development of primitive manufacturing and laid the foundation for the great industrial life of New England today. In contrast, the level, fertile land of the Coastal Plain in " tidewater Virginia," and its adaptability to the highly profitable production of tobacco, led to the growth of plantation agriculture in that region as the dominant type of economic life. Similar conditions of surface and soils, combined with warmer temperatures, led to the growth of the great cotton plantations of the southern portion of the Coastal Plain.

By means of the river valleys the settlers penetrated the Appalachian Highlands and discovered there an abundance of coal, iron, and oil, which have led to the development of a highly complex industrial life in that region. The settlement of the Central Plains opened up a wonderful source of food

supply, based upon the suitability of the level land, of the fertile soils, and of the rainfall to the raising of grain crops. The mineral wealth of the Rocky Mountains and the gold of California tempted men to brave the hazards of a transcontinental journey on foot or by wagon, and introduced another type of economic life into the new nation. In the drier parts of the Great Plains and in the semideserts of the Western Plateaus the grazing industry formed the dominant element in the life of the people.

As each region developed along its particular economic line the interdependence between regions became increasingly important. The industries of New England came to depend upon the cotton from the South, the wool and hides from the West, and the coal and iron from Pennsylvania. The industrial districts of the East, with their dense population, have come to depend upon the Middle West for a large part of their food supply. The agricultural areas call upon the manufacturing regions for their implements and utensils. From the demands of the prosperous farmers of the Central Plains have come the invention and manufacture of the greatest farming implements this world has ever known. The need for the exchange of products between the different regions has stimulated the development of a great network of railroads and has led to the growth of domestic commerce on a large scale. The surplus production of foodstuffs, minerals, and manufactured goods in the different regions has provided our country with the means of developing a great system of foreign commerce.

The growth of each natural region along its own economic lines, the interdependence of the regions, and the sectional differences of opinion which have resulted largely from

variations of geographic environment have combined to shape in large measure the history of the United States. To be sure, many other factors have entered into our national history, but these cannot be intelligently appreciated unless they are projected against the geographic background. It is imperative, therefore, that in the early years of their education, children should become familiar with the natural regions of our country, that they may interpret intelligently the history of the past and the problems of the present and the future.

Regional geography plays an equally important part in the history of other nations, and will be found to be the best basis for the correlation of their history and geography. It is particularly pertinent to the study of the new nations of Europe which have come into existence since the World War, and will be found to provide a sound, vivid background for an appreciation of their struggles to establish themselves in the economic and social life of Europe and the world.

Book Two, with its complete series of maps of continents and countries showing natural regions, relief, vegetation, rainfall, products, and population, provides a wealth of reference material that can be used by pupils in solving problems of the relation of history to geography.

IV

THE PROBLEM METHOD

As teachers of geography our task is not merely to teach geographic facts; we must hold constantly before us the ideal of training students in clear thinking and sound reasoning power. No one has discovered any better method in teaching than the open, frank discussion of a problem. This method serves as the basis of the so-called socialized recitation. It is not new. Every great teacher from the time of Socrates to the present day has made use of it.

The teacher's first duty in beginning a problem is to so motivate the work that the pupils may come to make the problem their own. If it is arbitrarily thrust upon them simply as an exercise to be performed, it fails to arouse interest and therefore loses much of its value. Some point of contact must be made between the actual life of the pupils and the problem to be solved. Since the school children of this country live under widely varying conditions, no general rules can be laid down for this personal-contact motivation. Each teacher must adapt her problem work to the peculiar interests of her class. For example, the children of San Francisco can be interested directly in a problem concerning our trade relations with the Orient through their personal experience in seeing at the docks or in San Francisco Bay the ships that ply in the oriental trade, or by their visits to oriental importing houses and their personal familiarity with many oriental products. The children of New

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York, on the other hand, have no such personal contact with this problem. Their introduction to it should be made through a preliminary study of the products of the Orient that have a definite relation to their daily lives, — tea, rice, and silk. A consideration of the importance of these products to the people of New York will lead to a keen interest in finding out how they are brought from the Orient, and upon the basis of the curiosity aroused on this point a problem concerning our oriental trade as a whole may be motivated.[1]

A thoughtful study of the life of the people in any natural region in the world will present a large number of excellent geographic problems. If, for example, we undertake a study of the life of the people of New England, we shall first wish to know something about the surface features of the region. Immediately questions will arise as to the explanation of the irregular, indented coast line with its many islands. Someone will want to know why there are so many falls and rapids in the New England streams; another, why the fields are strewn with rocks and bowlders; still another, why there are so many lakes and ponds. These questions will lead to the discussion of the fundamental principles of physical geography as applied to New England, and will introduce a problem study of shores and shore-line activities and the work of glaciers and rivers.

[1] Teachers who desire special help on the problem method, the socialized recitation, and the motivation of school work are referred to the following books:

Branom, M. E. and F. K., "The Teaching of Geography." Ginn and Company, Boston, 1921.

Wilson, H. B. and G. M., "The Motivation of School Work." Houghton Mifflin Company, Boston, 1916.

A survey of the nature and distribution of plants and trees in New England will necessitate a study of the climate. This will provoke in the classroom a discussion of problem after problem that will lead the class into an interesting study of winds, rainfall, and daily weather changes.

When we attack the study of the occupations of the people of New England, we shall first wish to know what the early settlers did to make a living, and why. To solve this problem we must study the natural resources, — the soils, the forests, the harbor conditions, the offshore fishing grounds. We shall soon be driven to a study of the depth and configuration of the ocean floor, the extent of the continental shelf, and the nature of the ocean currents, all of which affect the conditions of sea life off the New England coast.

We shall wish to find out why, in the early days of settlement, the farmers worked so hard to clear the fields of trees and stones, and why, in later days, so many farmers have abandoned their New England homes and have moved westward into the prairies. We shall wish to learn why, with the abandonment of much of the farming, came the establishment of manufacturing, and how the water-power sites that first invited the construction of little mills are now centers for the generation of hydroelectric power on a large scale. All these problems, and many others, will have to be solved before we can arrive at an understanding of the great development of New England as a manufacturing region.

As we turn from the study of one natural region to another we open up new problems, the solving of which will be necessary to a full appreciation of the life of the people. Later the relationship of the life in one natural region to that in another will furnish a series of large problems, and

the relationship of the people of one continent to those of another will present still larger problems of world importance.

If the teacher once grasps the idea that she is before the class not merely to hear a recitation but to train the pupils, the whole life of the classroom will center about the solution of problems. It will become the scene of frank discussions in which the pupils will take part with the teacher, and in which the teacher will have an almost unlimited opportunity to influence the mental growth of the pupils. She will strive to develop the intellectual power of each pupil, to strengthen his character, and, ultimately, to prepare him adequately for the solution of more and more difficult problems as he grows older.

TYPE PROBLEMS

The following type problems have been worked out in detail to show how a series of problem lessons may be conducted and how Book Two, with its wealth of maps, pictures, and other reference material, lends itself to the teaching of geography by the problem method.

Problem I

Why are there more large cities in the northeastern part of the United States than in an equal area in any other part of the country?

This northeastern area includes the larger portion of the New England States, New York, Pennsylvania, New Jersey, and northern Maryland. See map on page 21.[1]

From the list of cities given on page ix of the Appendix, or on page 4 of Atwood, Allen, and Robinson's "Practical Map

[1] All references, unless otherwise specified, refer to Frye-Atwood, "New Geography," Book Two.

Exercises," select the fifteen largest. How many of these do you find on the map on page 21? What fractional part of the fifteen largest cities of the country are located in this northeastern area? From the figures given on page viii of the Appendix find the combined area of the states named above. What fractional part of the area of the entire country is this? From the statistics given on page viii of the Appendix find the population of the states mentioned above. What fractional part of the total population of the United States is this? How does the density of population in these states compare with that of the United States as a whole? (The making of two graphs to show the results of the two latter problems would give the pupil a clear understanding of the relationships of area and population.)[1]

By studying the map on page 21 and the figures given on page ix of the Appendix, find out how many cities named on this map contain more than a hundred thousand people.

For this work the different states might be allotted to different pupils or to groups of pupils. One group might make a list of all cities named on page ix containing more than a hundred thousand people, exclusive of the fifteen largest cities in the country.

What proportion of the cities named in this list are found in the northeastern district? Where are the other cities in the list located? Are they in any one district or are they scattered over the country? How many of the forty-eight states are represented in this list? How many in the list of the fifteen largest cities?

Which one of the states shown on page 21 has the greatest number of the large cities of this northeastern district?

[1] Some teachers will prefer to have the class work out the problems concerning the areas and populations as a part of the arithmetic exercises rather than in the geography time.

Which state comes next? Which state has the fewest? How many of the cities in your list are mentioned in the text on pages 8 and 9 and 29 to 33? What cities are mentioned in the text that are not given in your lists? From the figures given on page ix of the Appendix, arrange these in the order of their size.

(The verifying of the premises stated in the problem will be of great help in locating many of our large cities. Other devices and drills will be necessary, however, to fix the location of these places firmly in mind. Valuable help in this direction will be found in Atwood, Allen, and Robinson's "Practical Map Exercises.")

The doing of the exercises suggested above demonstrates clearly to the pupils the fact that there are more large cities in the northeastern district than in any other part of the country, and brings them face to face with the problem, Why have so many people gathered here?

Turn to the map of the World, Plate B, in the Appendix. Locate this northeastern district of the United States. Notice the cities which are shown here. Direct the attention of the pupils to the amount of trade carried on between Europe and this part of our country as compared with that carried over the other routes shown. Note also that the trade route is shorter than any other between Europe and the Western Hemisphere except the Canadian routes.

Why so much less trade is carried on over the shorter, more northerly routes furnishes another problem, to be taken up briefly or solved at another time.

Through a study of the Trade Route Map, Appendix, Plate B, the following points may be made:

1. That the northeastern part of the United States is nearer to Europe, with its crowded population, great cities, and important industries, than any other part of the country, and that the greatest bulk of trade would naturally follow the shortest route.

2. That the immigrants coming from Europe would land at our northeastern ports and that many would naturally locate in or near them.

3. That the great trade and the many workers would stimulate the growth of industries, manufacturing centers, and seaports.

The trade of seaports depends on the wealth and productions of the hinterland and the ease of communication with it. Read on pages 48 and 49 what is said under the topic "Farming." Read also page 50 and the first column of page 51. Study Fig. 42 and notice on page 21 how these railroads follow river valleys. Emphasize the value of river valleys in opening up regions to trade. At this point read the first column on page 30 concerning the natural trade route between New York City and the rich lands of the West.

In connection with the great trade of northeastern cities, have the pupils turn to the map of New England on page 13 and that of the Middle Atlantic States on page 35 and make a list of the seaports which are largely engaged in European trade. What do the maps tell about the exports and imports of these cities? Interesting discussions may be introduced concerning the commodities imported into the United States through these ports, — where they come from, why they are needed, why they are imported rather than produced in our own country, what is done with them after they are deposited on the wharves at the seaports, etc. Are they used in the cities or in the country regions? Are they all used in this northeastern district or are some of them sent to other parts of the country? To which of the cities mentioned in the lists at the beginning of this chapter would large quantities of hides and skins be sent? of cotton? of wool? Study Figs. 6, 7, 8, and 17 and their legends. Similar discussions concerning exports will be found of equal interest and value. Study Figs. 40, 41, 55, and 76 and note the natural resources and products shown on page 35.

The coast line of the northeastern part of the United States has had a great influence on the location and number of its large seaports and their trade. This is a drowned coast, where the sinking of the land has allowed the ocean water to come far into the rivers, transforming their mouths into deep bays and making their lower channels more valuable for navigation. These drowned valleys make splendid harbors. Read the text on page 11 on the "Sinking of the land." Study the aëroplane drawings on pages 9 and 30 and tell how the sinking of the land has improved the harbor of Boston and given to New York its wonderful advantages for ocean commerce. Study also Figs. 7, 9, and 53.

How many of the cities in the lists made at the beginning of this exercise are located on drowned valleys? Can you find the names of the rivers whose mouths have been drowned?

In addition to the natural advantage of numerous good harbors, northeastern United States has the additional advantage of a direct waterway from its chief port to the Great Lakes, giving easy access to the rich lands and other natural resources of the interior of the United States. This waterway is formed by the Hudson River and the New York Barge Canal.

Read page 30 and study Figs. 53, 54, 581, and 582. On the map on page 35 trace the Hudson-Mohawk waterway from New York City to Buffalo.

Both the surface and the drainage of this northeastern district have had much to do with the development of its many large manufacturing cities. Indeed, in some cases it accounts for their existence. Discuss the necessity for power of some sort in the development of manufacturing. Today steam and electric power are largely used. The northeastern part of the United States possesses an abundance of water-power which from early colonial times has stimulated manufacturing. Look at the pictures and study the legends in Figs. 6, 8, 17, 62, and 67.

An understanding of the abundance of water-power in this region demands a knowledge of something more than the surface features and the drainage as they appear today. The great glacier which once overspread the northern United States had a great deal to do with the creation of the water-power which stimulated manufacturing here and caused the birth and the growth of great manufacturing cities.

Read the paragraphs on "Ice invasion" and "Waterfalls, rapids, and lakes," on page 10; read also the last paragraph on page 36. Read about the water-power and the use made of it today, on pages 27, 42, 295, and 296. On page 21 find the large water-power plants. How many of the cities named in the lists made at the beginning of this exercise are located near large water-power sites? Read on page 34 about Buffalo and Rochester.

Many of our eastern rivers flow from the hard rocks of the Piedmont Belt (see map on page 21) over the softer material of the Coastal Plain. The softer rocks are more easily worn away by the water and therefore falls occur in the rivers at the inner margin of the plain. Read the text on page 17 concerning the fall line. What cities on your lists do you find on the fall line on page 35? How can you tell on this map where the fall line is? Read the first paragraph of the last column on page 29. Read also about Trenton and Wilmington on page 34, about Baltimore on page 33, and about Washington on page 32, and study Fig. 56 and its legend.

What other sources of power in this district do you find given on the map on page 21? Note the number of times coal, gas, and oil appear on this map. Read what is said about these natural resources on pages 26 and 27. What is stated about the occupations of the people of Pennsylvania on page 34?

On the map on page 284 and that opposite page 82 you will notice the forest region of New England. In the early colonial days the forests extended nearly or quite to the water. In the

deep bays and sheltered coves were built many vessels in which the fishermen sailed on their long cruises. The fishing industry helped to develop the cities and towns along the coast. On pages 13, 23, 35, and 106 note the fishing grounds off the Atlantic coast. Vessels to be used by the traders to carry the fish and other commodities to distant countries were needed. Thus trade stimulated shipbuilding and the manufacture of commodities needed by fishermen and traders. Later, when iron and steel vessels came into use, the iron deposits in the Appalachian Highlands led to the building of vessels from this material. In Bath, Quincy, and Newark, in Baltimore, in Philadelphia, and in other places with good harbors where the ships can be easily launched, shipbuilding is an important industry.

The climate in the northeastern part of the United States has helped in the development of manufacturing and in the building up of industrial centers. The distribution of rainfall serves to supply the streams with water throughout the year. Read on page 28 about the help of the forests in this connection. Power from the streams is thus available at all times.

The moisture in the air is favorable to textile manufacturing, for in dry air the threads are much more brittle and break more frequently. The temperature is not so cold as to be numbing nor so hot as to be enervating. The hot waves and cold waves, though sudden and often disagreeable, are invigorating. Read about the New England climate on page 6 and about the climate of the Appalachian Highland region on page 29.

The many and varied manufactures of this section have drawn laborers from other countries, and a corps of skilled workers has been developed whose ability along specialized lines is not surpassed in any part of the world. The goods which they produce stimulate commerce, and the trade that is thus created in turn stimulates manufacturing. Read page 7, last column.

Read about the cities of the northeastern district of the United States and their industries on pages 8, 9, 29, 30, 31, 32, 33, and 34.

At the close of the series of lessons on this problem, sum up clearly and briefly the causes which have helped to develop the large number of cities in the northeastern part of the country:

Location	Sources of power
Nearness to Europe	Raw materials
Connection with the hinterland	Forests and fisheries
Harbors	Climate
Surface and drainage	Workmen

Problem II

Why should the people of the United States be vitally interested in the development of foreign commerce?

Make a list of at least fifty things on your table, in your home, or in the stores of your home town that have been imported from other countries or in the manufacture of which imported material was needed.

What is produced or manufactured in your home town, in your home state, or in neighboring states in such large quantities that some of it is sent to foreign countries?

On page viii of the Appendix find the area of the United States. Find its population. If all the land in the United States were equally distributed among the people, how many acres might each one possess? Compare this amount with the number of acres available for each of the people in England, France, Belgium, Germany. Study maps on pages 124 and 216.[1]

Of course much of this land is unfit for farming; it may be mountainous, or forested, or too wet, or too dry. What areas in the United States do you know in which farming cannot well be carried on? Why?

[1] This work may be assigned as a part of the arithmetic lesson and the results used as a basis for the discussions in the geography class.

Read on page 278 about the "Cultivated land in the United States" and how it compares with that in some European countries. Study also the diagram in the first column of this page, Fig. 542. In the second column, study the list of states with their percentage of improved land. In what part of the country are the states situated which have the greatest area of improved land? How do you account for this?

The class should discuss the effects that the size and density of population of a country have upon its occupations. Many of the European countries are small and densely populated. They have little room for large farms, and hence sufficient food products cannot be raised to supply the people. Therefore such products must be imported to a large extent. The majority of the people are gathered in the large cities, where they work in the mills, factories, foundries, etc. Large quantities of manufactured goods are thus produced which must be exported to pay for the raw materials that it is necessary to import. By means of these and other examples the mutual dependence of countries may be emphasized.

The countries of the world which export large quantities of raw materials for food and clothing are those with great areas of fertile soil and sparse populations, such as the United States, Argentina, Australia, and, in normal times, Russia. Read on page 278 the paragraph below the list of states.

To give a clear understanding of the amount of food crops raised in the United States, the class should study carefully the paragraphs on pages 278 and 279, under the heading, "Our leading food crops." The maps showing the production of these crops, and the legends under these maps, should receive much attention.

By writing to the Department of Agriculture at Washington the latest statistics may be obtained concerning the amount of food crops produced, the rank of the states in production, the amount consumed, and the amount exported.

Read about our corn crop on pages 48 and 49. In what form do we export most of our corn? Read the second paragraph on page 57 and the last paragraph on page 278. Study also Figs. 86, 87, 93, and 543.

Read what is said about wheat on pages 49, 53, 57, and 69. Study pictures and the legends beneath them in Figs. 92, 96, and 544.

Because of the large areas in our country suitable for pastures, and because our sparse population makes it possible for us to use these regions for pasture land, our live-stock product, which serves for food, clothing, and other necessities, is very large. Read about the production of cattle, sheep, and other animals on pages 56, 60, and 283. Study the pictures and the legends under them in Figs. 94, 95, 104, 105, 106, 553, 557.

Because of the great extent of our country, our fertile soil, our favorable climate, and our sparse population we produce many other important commodities besides those used for food. What products used for clothing are mentioned on page 283? Read about cotton on page 16. Study the map and its legend in Fig. 554; also the cotton map on page v of the Appendix.

Make a list of the food and clothing products of the United States that have been mentioned. Study the maps on pages 13, 23, 25, 35, 73, 76, and Plate B in the Appendix. From what ports are these products exported to other countries? Make a list of the United States seaports, arranging them in the order of size. What other products are shipped from these ports?

We have spoken thus far of our food and clothing materials and of other raw products which we produce in such abundance that there is a surplus for export. The United States is noted not only for its production of raw materials but also for its manufactures. We are one of the most active manufacturing nations in the world, and in some of our manufactured products we rank ahead of any other country. On pages 284–296

are given some of the resources of the country which aid us in manufacturing. Make a list of these resources, placing them in what you consider the order of their importance. Study carefully what is said of them. Study also the pictures and legends relating to them. Using the maps referred to in the preceding paragraph on which exports and imports are shown, make a list of the manufactured goods that are sent to other countries. Using the index, find where these articles are manufactured and what cities are noted for their production. Locate these cities. Study all pictures relating to these manufactures. By writing to the Department of Commerce at Washington you can ascertain the value of the manufactured goods that are exported. Which do you think are of the greatest value?

From the maps showing the exports and imports, make a list of all the articles mentioned as being brought into the country. Do you find all that are mentioned in the fifth paragraph on page 303?

Why is it that we have a surplus of some articles to export and are dependent on distant countries for other articles?

Using the map on page 122, find what parallel runs near the northern boundary of the United States; near the southern boundary. The latitude in which the United States is situated tells us that it is in what zone? What parallel is the boundary between the temperate and torrid zones? Where is this parallel with reference to the United States? About how many degrees distant from the torrid zone is the United States? About how many miles distant? Judging from this position of our country, what products should you think cannot be raised in the United States? Name some of these products.

What tropical products do you find are exported from the countries shown on the maps on pages 118–119, 135, 145, 227, and 250? Make a list of these products which are imported into the United States. Arrange the imports in what you

consider the order of their importance. Write to the Department of Commerce for statistics concerning their value. See how nearly correct you were in your arrangement of them.

(The text, the pictures, and the maps relating to these products should be used if time is available at this point for making a detailed study of these imports.)

Read carefully what is said on page 299 about the dependence of our industries on imported materials. In connection with the importation of silk, be sure to make clear the fact that it is the labor problem, and not the inability to produce silk in the United States, which makes its importation necessary. Labor in Japan and China costs so little that the United States cannot compete with these Eastern countries in silk production. Study Fig. 586.

Study carefully on pages 299 and 300 what is said about the necessity for the importation of rubber.

Read on page 302 about the beginnings of our foreign commerce. Name the factors favoring its growth. On page 303, what remarkable change is mentioned as having taken place in our foreign trade since 1850? What does this fact tell you about the change in, or the development of, our industries? How will our foreign commerce of the future differ from that of the past?

What imports are mentioned on page 303 as important in our future commerce? Why will large importations of these articles always be necessary? Shall we need larger or smaller amounts of these imports in the future? With what countries of the world, therefore, shall we in the future have even closer relations than at present? Why is it necessary for you to have a much greater knowledge of the different countries of the world than your grandfather had?

Read carefully page 304, paying special attention to the second paragraph in the last column.

Make a brief summary of your answer to this problem.

Problem III

Is Czechoslovakia or Austria more favored by natural conditions?

After studying the map on pages 182–183, describe the surface of Austria. How does it compare with that of Czechoslovakia? How much of Austria is rugged mountain country? Study Fig. 390. In this mountain region, especially in the west, the scenery and the agricultural and pastoral pursuits resemble those of Switzerland. See Figs. 374, 379, and 380. A third or more of Austria is covered with forests and high pastures.

The production and exporting of lumber has been one of the leading Austrian industries. Bring out the idea that it is difficult to develop this industry in the steep, narrow valleys in remote and mountainous districts. Much needs to be done in exploiting forested areas, — camps must be fitted out, roads and railroads built, and sawmills installed.

Where is the only upland region in Austria? See map on pages 182–183. Where is the only plain region? How does the amount of upland area in Austria compare with that of Czechoslovakia? Which country has a surface more favorable to the carrying on of agriculture? In which country would road-making and the construction of railroads be more difficult and more expensive?

What navigable rivers do you find in Austria? See map on pages 182–183. In what part of the country are they? In which country, Austria or Czechoslovakia, is the interior better supplied with navigable streams? The navigable rivers that you find in Austria are branches of what river? Do you find a water route from Austria to the North Sea?

List the mineral products of Austria. What mineral product essential in manufacturing do you find lacking in your Austrian list? Judging from the surface of Austria, what form of power must be available? Explain any handicaps in its development. Read all you can of Austria's industries. (See page 193

and use supplementary readers if possible. See page i of the Appendix.)

Describe the surface of western Czechoslovakia; of eastern Czechoslovakia. See map on pages 182–183. What river flows through the western part? Of what river is it a branch? Are these rivers navigable? Goods carried on these rivers will pass out into what sea? through what great port? What great river flows near the southern boundary of the country? Do you find navigable branches of that river within Czechoslovakia? What river rises in the north-central part and flows northward past the port of Stettin? How far is it navigable?

The rivers of Czechoslovakia which serve as arteries of traffic are few in number but are of great importance. Note that the most important international transportation route in Czechoslovakia provides an all-water route to the North Sea. This route is navigable most of the year.

What river forms a great artery of commerce between Czechoslovakia and her vitally important Russian and Balkan markets? Where might a system of canals connect the Danube with the Elbe and the Oder?

What does the text in the first column on page 190 tell you about some of these rivers? How does this provision of the treaty affect the commerce of Czechoslovakia?

Make a list of all the farm products of Czechoslovakia which are given in red type on the map on pages 182–183. Note the proportion of land suitable for agriculture. Compare with Austria.

(In working out problems children should be encouraged to use supplementary texts whenever possible.

The following quotation from one of the numbers of *The Geographic News Bulletin*, formerly issued by the Bureau of Education in Washington, will be found of interest in connection with this problem on Czechoslovakia:

Nature has favored old Bohemia, the most important part of Czechoslovakia, perhaps more than any other part of Europe. Its

soil is so fertile and its climate so favorable that more than half of the country is cultivated and produces richly. In its mountains almost every useful metal and mineral are to be found. It is the geographical center of the European continent, is equally distant from the Baltic, North, and Adriatic seas, and, though inclosed by mountains, is so easily accessible because of the valleys of the Danube and Elbe rivers that it has served in history as the avenue of many armies.)

What is done with many of the agricultural products? Study Fig. 396 and read the paragraph on "Resources and occupations" on page 195, and the paragraph on Pilsen on page 196. What industries do you find mentioned which depend upon the mineral resources? Make a list of them. Read about these industries in other books. See list on page i of the Appendix.

List the minerals that you find in Czechoslovakia as shown on the map on pages 182–183. These minerals are very important and the deposits are very rich. Coal is one of the most important for any country. This new republic has plenty of coal for her manufacturing industries and a large surplus for export. Judging from the surface of the country, what other form of power should you think would be available for manufacturing?

In what part of Czechoslovakia do you find iron mentioned on the map? The deposits here are very extensive. Why is it possible for Czechoslovakia to have such cities as are shown in Fig. 395? What mineral do you find given in the very western part of Bohemia? Read all you can find about the glass and porcelain industries of Bohemia.

What is the population of Czechoslovakia? See page viii of the Appendix. What is the combined population of her two greatest cities? See page x. About what proportion of the people of Czechoslovakia remains to promote agriculture, mining, forestry, and manufacturing throughout the country? About

what proportion of Austria's population lives in her two largest cities? What proportion is left to promote her industries throughout the country? Do you think it is an advantage or a disadvantage for so large a proportion of the population to live in one or two of the cities?

Conclusion. Make a list of the natural advantages that favor these countries, and decide which is the more fortunate.

Problem IV

Why is possession of a port on the Black Sea and free use of the route from that port to the Mediterranean of great importance to the development of Russia?

Locate Russia on the map on page 201. Which of the natural regions described on page 158 are represented in Russia? Read the paragraphs about those regions on pages 158 and 159, and study Fig. 314. Read about the "Natural resources" of Russia on page 198, and about "Occupations" on page 199. Make a list of the natural resources shown on page 201, and another list of the articles of export and import.

Discuss the question, Is it probable that Russian commerce will increase or decrease in importance in the future?

On what seas does Russia border? Note the chief seaports. On what seas are they located? Over what sea routes can Russia gain direct access to the great oceanic routes of commerce? What are the disadvantages of shipping goods overland to the seaports of other countries?

What is the chief disadvantage of a port on the Caspian Sea? On Plate B in the Appendix locate the chief seaport on Russia's northern coast. How would a boat reach the great ocean highways of travel from this port?

Study the map on page 201. What parallel crosses northern Russia near Archangel? What is the dotted line north of this parallel? What zone lies north of it? Note the name of the city in the upper right margin of the map which is in about

the same latitude as Archangel. What do you know about the climate near this city?

Read the paragraph on "Coast line" on page 198, and what is said of the "Climate" of northern Russia on page 199. What are the chief disadvantages of the port of Archangel?

In what latitude is Petrograd? Where does the 60th parallel cross North America? See page 122. What do you know about the harbors on Hudson Bay and in Labrador in winter? What, then, should you expect of the harbor of Petrograd? Read about Petrograd on page 199, and study Fig. 406.

How do ships from Petrograd reach the Atlantic? What country lies at the mouth of the Baltic Sea? What strong nations might, by controlling Denmark, block Russian commerce from the Baltic Sea to the Atlantic Ocean?

Using the map on pages 208–209, trace the shipping route from the Black Sea to the open ocean. Find the narrow straits through which ships following this route must pass. Study insert maps on page 208 and Figs. 419, 440, and 441. Read paragraphs on Gibraltar on page 205, and on Constantinople on page 215.

After this study, what do you find to be the difficult problems regarding Russian commerce? What can Russia do to help solve them? Can Russia solve them alone?

Sum up your answer to this problem.

Problem V

Why is foreign commerce essential to the development of Japan?

Locate Japan on the map on page 247 and on the World map, Plate B, in Appendix. Compare Japan's location with that of Great Britain.

What does the map on page 247 tell you about the surface of Japan? How were the islands formed? Read paragraphs on "The islands" on page 233, and on "Natural regions" on page 246.

Read the first paragraph under "Occupations" on page 248 and find out how the Japanese manage to farm on the mountain sides and what products they raise on their farms. Study the pictures on this page and the legends beneath them. Study the map on page 247 and Plate B in the Appendix and see where some of these products are sent.

Using page viii in the Appendix, compare the areas of Japan and the United States. Compare the population of the two countries. Do your figures agree with those given in the first paragraph on page 246? How many acres are there per person in Japan? in the United States?[1]

What other countries of the world have dense populations? See maps on pages 82, 216, and 256.

For a long time Japan was chiefly an agricultural country and her people lived largely on the products of the soil. See the second paragraph on page 246. Why is it impossible today for her to support her entire population in this way? What industries which use large numbers of skillful workers have come to be very important in Japan? Read the last two paragraphs under "Occupations" on page 248 and study Figs. 497, 498, and 499.

Read the last paragraph on page 246 and discuss the importance of the three last-named natural resources. Read the paragraph on "Future" on page 249.

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As Japan becomes a greater and greater industrial and manufacturing center, what can you say regarding the importance of her commerce? What is true of her harbors? Read paragraphs on "Cities" on page 248. In what ways does her location favor commerce? Study Plate B in the Appendix. Compare the relative sizes of the Atlantic and Pacific oceans on the map on page 275. Note the time required for Japanese

[1] The working out of such examples with a definite aim in mind of solving a geographical problem makes interesting work for the class in arithmetic.

ships to reach the world's chief markets. See Plate B in Appendix. How must this influence Japan's desire for coaling stations in different parts of the world?

Read on page 243 about the resources and occupations of China. Find out on page viii of the Appendix how many people there are in China. Think of both their occupations and their needs, and explain how the proximity to Japan of the great land of China, with its three hundred million people, will help the Island Nation in her problem of obtaining raw materials for her factories and in securing markets for her manufactured goods.

In addition to raw materials for her manufacturing, what will it be necessary for Japan to import in larger and larger quantities as her people turn from agriculture to manufacturing? Compare the populations of Japan and England, page viii of the Appendix. How does England obtain a large proportion of the food needed for her population? Read the last paragraph under "Occupations" on page 166 and the paragraph on "The British Empire" on pages 168 and 169. How do the opportunities for establishing distant colonies today compare with the opportunities when England began to expand industrially?

Sum up your answer to this problem.

SUPPLEMENTARY SUGGESTIONS FOR PROBLEM WORK

The following problems are offered as suggestions to teachers. The list is by no means comprehensive, but is introduced here as a general guide to teachers in working out problems for classroom discussion. The working out of such problems as these will require the use of text material, maps, pictures, statistical tables, and, in many cases, supplementary reading. See page i in Appendix.

1. Boston has an excellent harbor, capable of admitting the largest vessels, and is almost 100 miles nearer Liverpool than New York. Why is it not so important as a port as New York?

2. Philadelphia was at one time the largest city in the United States. Why have New York and Chicago outstripped it in population?

3. Will New England be able to hold indefinitely its position as the leading cotton-manufacturing region of the country? Compare advantages for cotton-manufacturing in the Southern states: accessibility to raw materials, power, labor, etc.

4. What effect will the development of the iron and steel industries in and around Birmingham, Alabama, have upon Pittsburgh in the future?

5. Why are the more important ports of the Atlantic coast located north of Cape Hatteras rather than south of it?

6. What effect will increasing trade relations with South America have upon the ports of the Gulf Coastal Plain?

7. If the Appalachian Highlands should be deforested, how would the eastern United States suffer?

8. Why has the Mississippi River not been developed as one of the main avenues of transportation in the United States?

9. How may the draining of the Everglades of Florida affect our domestic sugar production? Study conditions necessary for the production of cane sugar.

10. Why have great industrial cities developed in the Central Plains, primarily an agricultural region?

11. It is thought by some people that Chicago may sometime become the largest city in the United States. What developments in transportation might make this possible? Study the location of Chicago in its relation to the East, the West, the great food-producing areas of Canada, the Mississippi Valley, and South America. Do you think this development likely?

12. If the oil resources of Kansas, Oklahoma, and Texas should become exhausted, what would be the effect on the United States as a whole? Why should crude petroleum be refined before being used?

13. At present stock-raising is the dominant occupation in the Great Plains. What conditions will lead to a greater development of agriculture in this region? Find out what the Department of Agriculture is doing in the way of introducing drought-resisting plants; the possibilities of dry farming; the extension of irrigation.

14. Why are the larger cities of the Great Plains located along the western margin of this region?

15. Is it likely that the Rocky Mountain region will ever become a great industrial region? Compare conditions with those in the Appalachian Highlands, — raw materials available, sources of power, marketing facilities, labor, etc. How may the extension of hydroelectric development affect this problem? If such industrial growth should take place, what line of manufactures would probably predominate?

16. Is it likely that the Western plateaus will ever support a dense population? What conditions might make this possible?

17. Explain why it may truly be said that the Pacific Mountains and Lowlands present the greatest variety of contrasts of any of the great natural regions of the United States. Consider surface features, climate, soils, forest and vegetation conditions, mineral resources, etc.

18. How is it probable that the commercial importance of the Pacific coast may compare in the future with that of the Atlantic coast? It has been said that, as in the past the most important factor in the development of the United States has been its location on the Atlantic opposite Europe, so in the future the most important factor will be its location on the

Pacific opposite Asia. What arguments are there to support this theory?

19. May we expect San Francisco or Seattle to become the leading Pacific coast port a hundred years hence?

20. The purchase of Alaska was considered an extravagant folly by a large number of the American people. How has the purchase justified itself? In what ways will Alaska contribute to the development of the economic life of the United States in the future?

21. Why has Canada been explored and developed so much more slowly than the United States?

22. Is it probable that Canada will ever support as large a population as the United States?

23. What would the construction of a continuous deep waterway from the Great Lakes to the Atlantic Ocean by way of the St. Lawrence River mean to the cities of Montreal and Quebec? Would it help or hamper the development of the Central Plains of the United States? What might its effect be on the port of New York?

24. Is it likely that the Pacific coast of Canada will ever become as important commercially as the Pacific coast of the United States?

25. Why is the population of Mexico most dense in the semiarid plateau region?

26. If a stable government were established in Mexico, would there be any possibility of its becoming an industrial nation?

27. Why is it wise for the nations of Central America to form some sort of federation?

28. South America was explored and settled by Europeans earlier than North America. What geographical handicaps have stood in the way of its economic development? Contrast these conditions with those in North America.

29. Brazil is larger than the United States. Why is its population only about one fourth that of the United States?

30. Can the great plains of the Amazon Basin ever be transformed into an agricultural region? Consider the handicaps of excessive heat and moisture, exuberant tropical vegetation, unhealthful climate, etc.

31. Why, in general, are the plains of Argentina much more valuable than the plains of Brazil?

32. Is it likely that Argentina and Uruguay will ever become great industrial nations?

33. As yet the southern part of Argentina, known as Patagonia, has not been developed to any extent. How may this region become an important factor in the nation's economic life?

34. Public taxes in Chile are very low on account of the large amount of revenue which the government receives from the output of the nitrate fields of the Atacama Desert. If the nitrates should be exhausted, what other natural resources could the Chileans develop to increase their national wealth?

35. Why is Chile likely to become in the future the leading manufacturing nation of South America? Compare Chile's position and resources with reference to the rest of South America with the position and resources of New England with reference to the rest of the United States.

36. How may the handicaps of interior location in Paraguay and Bolivia be overcome? Would the other South American nations be acting wisely in giving these two landlocked nations free access to the seacoast?

37. In what ways are Colombia and Venezuela favored commercially more than the other South American countries?

38. What will the further development of the natural resources of the Central American and South American countries bordering the Caribbean Sea mean to the United States

in terms of trade relations? Will this development be more significant to the eastern or to the western states?

39. With what South American countries will the United States probably develop the largest trade relations in the future?

40. What geographical features of Europe have been partly responsible for the development of so many different nations?

41. In what ways are the location, surface features, and climate of Europe more favorable than those of North America?

42. What geographical conditions have made possible the busy commercial life of the nations bordering the North Sea?

43. Why did the people of Great Britain develop manufacturing earlier than any other nation?

44. How would Great Britain be crippled if she were to lose her foreign possessions?

45. Why has Belgium developed into a very important industrial nation, while the Netherlands has remained primarily an agricultural and commercial nation?

46. How has the geography of Norway affected national life? Is it possible that Norway may eventually become an important manufacturing country? Consider the possible development of hydroelectric power, accessibility of raw materials, marketing facilities, etc.

47. Why has Sweden developed agriculture to a much greater extent than Norway?

48. What commercial advantages has France reaped from its double sea front on the Atlantic and the Mediterranean Sea?

49. Of the three largest cities of France, only one is on the seacoast. What natural advantages have led to the growth of the other two?

50. What will the return of Alsace-Lorraine mean to the future industrial development of France?

51. Why was it natural that the Spanish people should have been one of the great exploring nations in the fifteenth and sixteenth centuries?

52. How has the mountain barrier of the Pyrenees been a disadvantage to the development of Spain in the last two centuries?

53. In the past Italy has been an agricultural nation as a whole. What possibilities has Italy for becoming more of a manufacturing nation in the future?

54. What geographical conditions have made it possible for Switzerland to maintain its independence, surrounded on all sides by other nations?

55. How many of the ten largest cities of Germany are located near important deposits of coal or iron? How have the mineral resources of Germany influenced the economic life of the nation?

56. What geographical disadvantages has the new nation of Poland to contend with?

57. Which nation is better equipped for independent national life, — Austria or Hungary? Consider location, surface, soils, routes of communication, etc.

58. Why is Czechoslovakia better off geographically than either Austria or Hungary?

59. If free use of the Elbe and Danube rivers were denied Czechoslovakia, could this new nation become a strong economic factor in the New Europe?

60. Why is it important that no one nation should control the Danube River?

61. Compare Rumania and Bulgaria in respect to geographic advantages and disadvantages. Which one will probably develop faster in the future?

62. The new nation of Jugoslavia is at present in a very backward state. What natural resources does it possess that will shape its economic life in the future? What form of economic life will probably dominate for many years?

63. Greece has greatly extended its area since the World War. Has it acquired new lands that are economically valuable?

64. Why is it right that the Bosporus, the Sea of Marmora, and the Dardanelles should be kept open for the free use of ships of all nations?

65. Why, in the past, has the industrial life of Russia been concentrated in the extreme western part of the country?

66. What great disadvantages of location has Russia had to contend with in the past? Has the outcome of the World War removed any of these disadvantages?

67. Study the territorial losses of Russia since the World War. In what ways will these losses cripple Russia in the future?

68. Are the geographical advantages of Finland and the Baltic States great enough to make them strong, independent nations?

69. Why was Africa not explored until so long after North America and South America were explored and settled by Europeans?

70. The life of the people of northern Africa has always been closely associated with the life of the people of southern Europe. Will it ever come to be very closely associated with that of the people who live south of the Sahara Desert? Consider possibilities for connection by railroad and by aëroplane.

71. Why is the center of densest population in Africa found in the Nile Valley, surrounded, as it is, by barren desert lands?

72. What parts of Africa are likely to be more and more fully developed by white men in the future?

73. Why are there so few independent nations in Africa?

74. Why should the nations of Europe wish to obtain and hold colonial possessions in Africa?

75. Is it likely that Africa will ever be as densely populated as Europe?

76. Why are large areas of Asia unfit for human occupation?

77. Why are the plains and uplands of northern Asia so much less densely populated than those of northern Europe?

78. In the past the lowland of Mesopotamia supported a large number of people. In those ancient times the civilization of this lowland was very high. How may it be possible to reclaim this lowland so that in the future it may again support a large population?

79. Why has Anatolia (Asia Minor) always been a natural bridge between Europe and Asia?

80. Of what significance has the cutting of the Suez Canal been to Europe?

81. What natural advantages has the new kingdom of Hejaz? Is it likely to become an important nation?

82. Why is the population of Persia largely of the nomadic (wandering) type? Can Persia ever develop a large stationary population?

83. How may the dense population of India be accounted for?

84. Why is India a valuable part of the British Empire?

85. Manufacturing in India is largely confined to handwork. Is there reason to believe that in the future India may develop machine manufacturing on any large scale?

86. Why has China, with its wealth of natural resources, until recently been such a backward nation?

87. Why is southeastern China the most progressive part of the republic today?

88. What possibilities does China possess for the development of manufacturing and commerce?

89. Every few years China suffers from a terrible famine. What is the cause? What conservation measures must the Chinese adopt in order to prevent these famines?

90. How may the Japanese Empire be compared with the British Isles?

91. What geographic conditions have led the Japanese to develop into one of the first-class nations of the world in the last fifty years?

92. Why are the Japanese interested in obtaining territory on the mainland of Asia?

93. Why is it probable that in the future the Japanese will develop a highly industrialized type of economic life?

94. What does the economic development of Japan and China mean to the western United States?

95. Why is the population of Australia concentrated along the eastern and southeastern margins of the continent?

96. Why, in all the years of English occupation, has so little exploration of the interior of Australia been accomplished?

97. Why have the Great Plains of Australia no large cities?

98. Will it ever be possible to irrigate the arid and semiarid parts of Australia extensively, and so make feasible their settlement?

99. What geographic conditions in New Zealand make it probable that in the future manufacturing may come to be very important in these islands?

100. In what ways do Australia and New Zealand serve the needs of the people of the British Isles?

V

PROJECT WORK

The study of geography lends itself very happily to the project method. It should be held clearly in mind, however, that a project, to be of the highest educational value, should have as its goal, or objective, an end which appeals to the pupils as interesting and worth while. The teacher, using her knowledge of the interests of her pupils, should introduce each project in a manner that will so appeal to the pupils that they will adopt it as their own. Oftentimes it is wise to allow pupils to suggest projects themselves. In such cases the teacher should make sure that the projects have a real value before allowing the pupils to embark upon them.

Simple projects are suggested in many places in Book Two in the plans for "Home Work." In assigning these projects the teacher must be guided partly by the particular needs of her class and partly by the library or other equipment which is available. The projects that may be suitable in a given locality will depend very largely upon local conditions. They may be based upon the agricultural life, the manufacturing, the commerce, or any other special interest of the community.[1]

[1] Teachers desiring further help in the use of the project method are referred to the following books:

BRANOM, M. E., "The Project Method in Education." R. G. Badger, Boston, 1919.

MCMURRY, CHARLES, "Teaching by Projects." The Macmillan Company, 1920.

TYPE PROJECTS IN THE STUDY OF GEOGRAPHY

The following type projects will prove suggestive. Many of them are adaptable to any locality, and certain of them may be employed again and again as the study of different regions, countries, or continents is undertaken.

Map projects

1. The preparation of a county or state map showing the products and the imports and exports on arrows, as on the sectional map on page 35.[1]

2. The representation, on a base map of the world, of the commerce of an individual city, showing by lines of import (in color) the routes followed by raw materials or food products coming to the city, and by lines of export (in another color) the routes followed by commodities shipped from that city.

3. The preparation of a wall map showing the natural regions of the United States. This could be colored somewhat like the map on pages 2–3. As the study of the United States proceeds, have the pupils gather pictures from magazines, advertising folders, railroad circulars, and other sources, and paste them on the map at appropriate places. When the study of the United States has been completed, a pictorial map of the country will have been prepared. The growth of this map will interest the students and enlist their coöperation.

4. Prepare a large wall map of the United States, showing the natural regions colored like the map on pages 2–3. As the study of the United States proceeds, help the pupils to obtain typical miniature samples of the chief mineral resources of these different regions, and attach these small specimens to

[1] All references, unless otherwise specified, refer to Frye-Atwood, "New Geography," Book Two.

BOSTON PUBLIC LIBRARY

the map at the appropriate places. This map should grow as the study of the United States proceeds, and will serve for reference and wholesome review work.

5. In connection with economic and commercial geography, special maps of the world might be prepared, showing the chief producing regions and the routes of export for important food crops or mineral resources. These maps should be made like those on pages iv and v in the Appendix, but on a large scale, possibly of wall-map size, and used by the class in the discussion of problems where the material thus presented has an important bearing upon the work.

Picture projects

1. The selection and arrangement in a vertical column of a series of typical pictures of lands near sea level, ranging from the Arctic to the Antarctic regions.

2. The selection and arrangement in a vertical column of a series of pictures which show, in a given latitude, the change in the landscape from sea level to the tops of the highest mountains.

3. The selection and entering in a scrapbook of pictures of lowland plains studied in the course of the year. Each of these pictures should have a carefully prepared descriptive legend.

4. The selection and entering in a scrapbook of pictures of mountain regions studied during the course of the year. Each of these pictures should have a carefully prepared descriptive legend.

5. The selection and entering in a scrapbook of scenes in the plateau regions studied in the course of the year. Each of these pictures should have a carefully prepared descriptive legend.

6. The selection and entering in a scrapbook of pictures of the agricultural products of a given country.

7. The selection and entering in a scrapbook of pictures of valleys of different sizes. This might be varied by a scrapbook of waterfalls, of great irrigation projects, of national parks, or of coastal scenes.

(This scrapbook plan of pictures could be carried out for manufactured products, for types of vegetation, for animal life, for places of recreation, etc.)

8. Certain students, especially with the help and encouragement of the art teacher, might well prepare typical paintings or landscape sketches of the homes in the different natural regions under consideration. This project might be varied by sketches or paintings of the people with their different costumes, or bits of scenery from the mountains or cities of a foreign land.

9. The selection of pictures of children of the different countries studied during the year in the geography work.

Dramatic projects

1. The personification, by an individual child, of the people in a foreign land. This should involve the preparation of costumes, a special study of the life in that country, and the appearance in the class of the representative of that country, telling the story of his life and answering questions from the other children about the country from which he is supposed to come.

2. The acting, by a group of children, of a play which presents the life and stage setting of some country.

3. The working up of a pageant by the entire school. This should be done in coöperation with the history and literature work, so that it may be just as valuable to those fields of study as to geography.

4. The preparation of small habitat groups such as are often worked out on sand tables, showing in miniature the homes

of people in distant lands. This plan has been successfully carried out in a number of schools and may well include the following habitats:

An Eskimo home
The home of the American Indian
A Japanese home
A Chinese home
A scene on the banks of the Amazon
A Bedouin home in some semidesert region
A Swiss home
Life in Argentina
A typical American ranch
A typical American mining town
A typical prosperous American farm
A logging camp
A Dutch village

Museum projects

Building materials. The pupils may frequently find a real interest in the construction of some large building near their homes or in the vicinity of the school. Small samples of the actual materials used in the construction of the building can usually be secured from the workmen, and these may serve as a nucleus for a collection of building materials, the study of which will of necessity bring out a great many interesting lessons in geography.

Industrial exhibits. Many of the large manufacturing houses will furnish samples of raw material and of their products in the various stages of manufacture. These become very valuable collections in the school and should lead to important and interesting lessons in geography.

VI

THE USE OF THE PICTURES AND AËROPLANE DRAWINGS IN BOOK TWO

A child is enthusiastic when he first opens a book that pictures to him other homes, other people, other lands. He has the true spirit of the investigator and looks forward with joy to exploring new fields of knowledge.

Every picture in this book has been selected for the express purpose of teaching a definite fact or set of facts, and it has been inserted in the book as an integral part of the course of study, not as a mere embellishment of the page. Every picture is furnished with a descriptive legend calling attention to the particular features that should be studied. In many cases the legends include a question or two, designed to sharpen the pupils' observational powers or to increase their ability to interpret geographic facts in terms of human activity.

The teacher should note carefully the following guides to the use of the pictures. If the study of the pictures is neglected, the effectiveness of the course of study will be seriously impaired.

1. In beginning the study of each natural region or political unit every picture pertaining to the place in question should be the subject of careful examination by the pupils. In some cases (for example, see page 14) the author has given express directions for opening the study by a survey of the pictures. This method of approach may be used as often as the teacher

thinks best, and will be found to be most effective as a means of exciting interest and curiosity concerning the place and the people under discussion. Experience has shown that after receiving directions to proceed in this manner a few times, pupils fall into the habit of their own accord, and often exhibit great eagerness to begin the study of a country the pictures of which seem to them to be particularly interesting.

If this method of approach is not used, the pictures should be carefully studied in connection with the places or activities which they illustrate. The main object for the teacher is to see that the pictures are actually *studied* and *interpreted*, not merely glanced at or admired. Nearly every illustration is referred to by number in the place in the text where its study is most pertinent, so there can be no excuse for neglect on the part of either pupils or teacher.

2. In nearly all cases the legends under the pictures will be found to contain information which is not duplicated elsewhere in the text. This is an added reason for careful study of both pictures and legends. For example, see page 8, where the statement regarding Gloucester stands near the foot of the first column, and the picture opposite, Fig. 10, gives added information about the cod-fishing industry, at the same time making it possible for the pupils to visualize the facts stated. Every picture in the book could be used to illustrate this point.

Often the pictures appear in pairs, illustrating two phases of an industry and supplementing the text material concerning it. For examples, see Figs. 21 and 22 on page 15, Figs. 246 and 247 on page 129, Figs. 281 and 282 on page 144, and Figs. 497, 498, and 499 on page 246. Again, the pictures are often used to bring out contrasts or comparisons.

For examples, see Figs. 1 and 2 on page 4, Figs. 263 and 264 on page 137, and Figs. 591 and 592 on page 301.

3. The questions under the pictures should be answered with exactly the same care as those included in the Problems and Review Questions. Examination of these questions in the legends will reveal the fact that they are often intended to act as links between the study of maps, text, and pictures. Frequently definite directions are given to turn to a particular map. Too much emphasis cannot be placed on this correlation whereby pupils locate definitely on the map the place, scene, or industry illustrated. In many cases, where map references are not given, the answer to the question necessitates turning to a map. The teacher should see that the pupils develop the habit of consulting the maps without special instructions to do so. For examples of this type of question, see Fig. 18 on page 14, Fig. 85 on page 49, Fig. 287 on page 147, and Fig. 418 on page 205. In the two latter questions definite instructions for consulting maps are not given, but reference to the map on page 145 and to that on pages 208–209, respectively, will give the answers. Practice in this type of map reference will familiarize pupils with the use of the maps, and they will soon learn where to look for the particular kind of information needed. This practice in the use of reference material is invaluable as part of a child's general mental training.

In other cases the answers to the questions are to be sought in the text or in the reference material contained in the Appendix. The latter is a part of the book with which both teacher and pupils should become thoroughly familiar. For examples of this type of question, see Fig. 79 on page 46 (the answer to the final question in the legend can be obtained by

reference to Appendix, page ix) and Fig. 297 on page 150 (the upper map on the Appendix page referred to gives the answer to the question).

4. Lack of space makes it impossible to include in the picture legends all the questions that could appropriately be put to students during the time when the pictures are under discussion. Every teacher should supplement the legend material with other questions bringing out the significance of the details of the picture and seeking to develop in the pupils the ability to interpret these details, — in other words, helping them to solve the questions "Why" and "How" that will inevitably arise if the picture studies are developed thoughtfully and intelligently.

The aëroplane drawings of cities (pages 9, 30, 32, 33, 50, 79, 133, 167, and 185) are also designed for careful study. They have been drawn in such a way that they present the topography and setting of each city as it would appear if seen from an aëroplane.

Each one is accompanied by a full legend which directs the pupils' attention to the more important features of the city's geographic background. In some cases special picture studies have been introduced to supplement the legend material. These drawings make possible an effective emphasis on urban geography, visualizing for children the more important types of urban settings. The study of each drawing should be correlated with the study of the maps and pictures that are pertinent to it.

VII

THE MAP PLAN OF BOOK TWO

More time and study were given to the preparation of the maps in Book Two than to any other single feature. Every map was designed and drawn under the careful personal supervision of the author for its special purpose in the series.

Intelligent map reading is an essential part of the training in every good course in geography. Many problems can best be solved by a study of maps, provided the necessary data are clearly presented. The map scheme of Book Two was worked out with the needs of the problem method of study always in mind, and the maps contain all the information required for the solution of the problems suggested in the text. All the maps are new, and every one was especially prepared for the teaching of geography to children.

A simple and uniform color scheme is used for the physical maps showing natural regions, browns representing the different types of uplands and mountains, and greens representing lowlands. By this means, after careful study of one of these maps, the pupil will recognize at a glance the meaning of these colors on the other maps. The same color scheme is used in the series of political and economic maps. Here the same regional divisions in browns and greens form a background upon which appear in red the names of the chief products of each state or country. In addition, the principal imports and exports are graphically shown on the maps

by means of black (imports) and red (exports) arrows running to and from the chief seaports, which are indicated by red dots. The main avenues of domestic transportation are indicated, the chief railroads by a single red line, the navigable waterways by a double blue line, and the canals by an alternating solid and open blue line. Throughout the book purple is used in the maps to mark political boundaries.

With these maps the pupil has before him the necessary data for determining the outstanding physical features of each country, its chief commercial products, its means of internal transportation, and its trade with other parts of the world.

A series of colored relief maps depicts the land forms by means of modeling and represents also, by special devices, the different types of natural vegetation.

A series of rainfall maps not only shows by a simple color system the amount of annual rainfall in the different parts of the continents but also gives information regarding the seasonal distribution of the precipitation, which is far more important to the inhabitants than the actual amount of rain which falls during the year. Furthermore, the prevailing coast winds are shown by arrows, which give the clue to the cause of the rainfall conditions shown by the maps.

Population maps compiled from the latest data are presented in color.

By using the rainfall and population maps and the colored relief map showing the distribution of plant life the problem method of instruction can be used most effectively. The comparative map studies, introduced for use with these maps and placed at the end of the study of the United States and at the end of the study of each continent, are of great

value. They lead the pupils to sum up all the more important facts that they have learned about each of these major divisions, and enable them to discover many of the fundamental principles of geography. Such principles, discovered by the pupils themselves, are of the truest educational value.

The series of maps prepared for the United States includes

Physical map showing natural regions
Eight sectional maps with political and economic data
Special political map showing the principal railroads and time zones
Relief and vegetation map
Rainfall map
Population map
Fourteen product and resource maps
Special relief and economic map of the Northeastern Industrial District

In addition, there are special maps of

Alaska
Panama Canal Zone
Porto Rico
Philippine Islands
Hawaiian Islands

For each continent there is a

Physical map showing natural regions
Relief and vegetation map
Rainfall map
Population map

For each of the continents except Africa and Australia there are also sectional maps giving political and economic data. For Africa and for Australia and New Zealand full-page maps give the political and economic data.

Scattered through the text of the book and in the Appendix are numerous special maps. The two-page map of Mexico, Central America, and the West Indies is especially helpful, emphasizing, as it does, the commercial significance of the "American Mediterranean." Similarly, the sectional map of the North Sea countries emphasizes the trade relations that are centered in that sea. The map of central Europe will be found to be of great value in the study of the new countries of Europe. The map of the Mediterranean Sea countries brings out clearly the facts that the Mediterranean has been a stepping-stone to Africa and that the life and interests of that part of Africa which lies north of the Sahara are bound up inextricably with those of the Mediterranean countries of Europe. The map of the Near East features a part of Asia that is each year becoming of greater importance to the Western world; that of the Far East makes possible a detailed study of the Orient and the relations of Japan to China.

Colored relief maps showing the distribution of ice and vegetation in the polar regions are included, and there are two world maps, one showing the lands and the other the oceans, without any distortion of areas. One of the world maps carries the annual rainfall of the world, and the other carries the ocean currents and temperatures of the surface water.

The two large colored maps in the Appendix — one showing routes of important geographical exploration, the other showing the modern trade routes of the world — are referred to over and over in the text. Teachers should familiarize themselves with these maps and accustom the pupils to seek help from them. The map showing geographical explorations

is very useful in relating geography to history and may often be used effectively in opening the study of a foreign country. The world trade-route map furnishes important economic data and should be used in connection with the study of nearly every country.

Map studies are provided for use with each map in the book. Because of limited page space it is obvious that these studies cannot contain all the questions that might appropriately and profitably be answered in the study of each map. The questions given in the book serve to bring out the more important points that the pupils should gain from their map-reading, but it is strongly urged that the teacher supplement these questions by others of her own devising, that each map may be made to serve its maximum usefulness. A teacher will seldom make a mistake in continuing the study of a map so long as the interest of the pupils is maintained.

VIII

HOME WORK

Numerous suggestions are made in Book Two for assignments of work to be done at home or in the library. Eager pupils are not satisfied merely with the reading of the text in the preparation of a lesson that they enjoy. They would gladly prepare a map, a graph, a diagram, a model, or a set of pictures, or look up some special topic.

Practical map exercises are recommended most earnestly. Appropriate handwork can be made to supplement the classroom work in geography in an admirable way. Encourage the pupils to draw.

In the Home Work suggestions for the study of the United States will be found directions for the making of a political map of the country by progressive groups of states. This work is very helpful as a means of fixing in mind the more important facts of locational geography. If possible, similar maps should be made as the study of the political units of other continents is undertaken.

Often it may be best to assign to individuals or to committees special tasks, such as are suggested in Home Work. The children enjoy bringing to the lesson something that their classmates do not know. We should encourage team play and coöperation and even a certain amount of wholesome competition in the enrichment of the lessons, for such work adds to the interest and zest of the pupils in their school life.

IX

THE COURSE OF STUDY

Most of the larger school systems in America have prepared their own courses of study. These courses differ widely in the order in which the continents are studied and in the order in which the countries in each continent are treated. Such matters may reasonably be left to the local demands; this series of textbooks has been so prepared that it may be used with any course of study. The treatment of each continent forms one of the major units and may be turned to and used as the text for study whenever called for by the requirements of a given course.

Similar readjustments in order may be made in Book Two in the study of the natural regions of the United States. Many courses of study require the treatment of the home, or local, region first. By this plan the pupils are started out with a clear idea of the natural region which forms the home environment; then, on the basis of the understanding of this familiar region, they work outward to regions less well known. Book Two has been written in such a way that teachers will find it practicable to begin the study of the United States in the home region, if desired, and then to follow this with the study of the other regions in whatever order seems most effective from the home viewpoint.

Where a course of study is not provided, the following general plan, for four years of work, will prove helpful. In many schools it is followed with entire satisfaction.

GENERAL PLAN FOR FIRST TWO YEARS' WORK — BOOK ONE

BASED ON THIRTY-SIX WEEKS IN EACH SCHOOL YEAR

	WEEKS
Land, Water, Air, Life	20
The Earth as a Whole	7
North America	25
South America	3
Europe	7
Asia	4
Africa	2
Australia and Pacific Islands	2
The United States among the Nations	2

FIRST YEAR IN GEOGRAPHY — GRADE FOUR

Land, Water, Air, Life	20
Types of Homes, sections 1–10	4
The Land and its Uses, sections 11–19	4
The Water and its Uses, sections 20–33	6
The Air and its Uses, sections 34–36	1
Plants and Animals, sections 37–38	½
Trade and Market, sections 39–42	2
Laws and who Make them, sections 43–45	1
How to read Maps, sections 46–47	1½
The Earth as a Whole	7
Form and Size of the Earth, sections 48–52	2
The Land and the Sea, sections 53–56	2
Climate and Life, sections 57–63	3
North America (25 weeks, divided between Grades Four and Five)	9
Continent as a Whole, sections 64–68	2
The United States, sections 69–82	7

Second Year in Geography — Grade Five

	WEEKS
North America (Continued)	16
Groups of States	
New England States, section 83	2
Middle Atlantic States, section 84	3
Central States, section 85	3
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X

SUGGESTIONS TO TEACHERS AND ANSWERS TO QUESTIONS, MAP STUDIES, AND PROBLEMS IN BOOK TWO

NOTE. In preparing the material that follows, it has been considered unnecessary to cover all those questions whose answers can be read directly from the map or picture which is being studied, or those for which special references are given.

The page on which the group of Questions, Map Studies, or Problems occurs is given, and the questions are numbered in heavy type (**12**). The pages on which the text material bearing upon the question is found are numbered thus, (18); numbers preceded by the letter F (F4) refer to figure numbers; numbers in italics (*82*) refer to pages on which maps are found that give the answer or the clue to the answer to the question; the letters A and B refer to Appendix Plates A and B respectively. Locations are indicated by the use, in brackets, of the letters and numbers found in the margins of the maps; for example, the location of Mt. Katahdin would be given as [G–3].

North America

The study of this continent is taken up with great care. It is the home continent, and it is the first continent to be studied from the regional point of view. The pupils are led gradually to acquire an understanding of the life in the several natural regions of the United States, and later of the life in the natural regions of the other countries of this continent. This plan furnishes the pupils with the necessary background for the more general study of the continent as a whole and for the comparative map studies that close the work on North America.

The maps of this continent, on pp. 122, 124, and opposite p. 124, should be referred to frequently in connection with the study of the several countries.

United States

It is of prime importance that the pupils become familiar with the natural regions of our own country. This study should be based upon the map on pp. 2–3.

Page 4. ***Map Studies — Natural Regions of the United States***

2. Atlantic and Gulf Coastal Plains, Central Plains, Great Plains.

4. The Great Lakes (Superior, Michigan, Huron, Erie, Ontario).

5. See black dotted line on map.

6. Yes. From Duluth through Lake Superior and the Sault Ste. Marie to Lake Huron, or from Chicago through Lake Michigan and the Strait of Mackinac to Huron; thence by Lake St. Clair, Lake Erie, Welland Canal (to avoid Niagara Falls), Lake Ontario, St. Lawrence River, and Atlantic Ocean.

9. France. La Salle.

10. Pupils should be sure to fix clearly in mind the four belts which make up the Appalachian Highlands, since they are frequently referred to collectively under the latter name.

11. The elevation figures appear on the map. These figures represent the general summit elevations above sea level.

12. Colorado Plateau.

13. The Mississippi Delta.

14. The continental shelf is simply the extension of the land surface beyond the shore line and beneath the sea waters. Its outer edge is marked by the 100-fathom line, shown on the map in brown, with figures indicated. Withdrawal of the sea to the 100-fathom line would enlarge all states bordered by the continental shelf.

16. Southern limit of glaciation is indicated by line of black arrows crossing United States from Nantucket Island in Massachusetts to Olympic Mts. in the state of Washington. This line shows how far south continental ice-sheets extended during period of glaciation.

17. The driftless area of Wisconsin, Minnesota, Iowa, and Illinois was not, for some reason, covered by these ice-sheets in their movement southward. This area therefore stands to-day as an island of unglaciated territory in the midst of the glaciated region.

20. The Hudson-Mohawk route (New York State).

21. The Sante Fe and Spanish Trail route.

22. The California Trail.

28. Teachers should note that the maps in this book contain marginal names that indicate places in the same latitudes and longitudes in other parts of the world. Frequent reference should be made to these marginal names, that pupils may gain a correct knowledge of the locational relations between countries.

Northern Division of the Appalachian Highlands — New England

The regions bordering the Atlantic Ocean are taken up first in this book, partly because they are relatively simple regions to study, but chiefly because so much of the early history of this nation was associated with the life in these natural regions.

Some teachers may very justly prefer to have the pupils study their home or local region first. When that study has been completed and the pupils have a definite picture of the life in one natural region (their own), the study of the other regions may very well proceed from the east to the west, thereby securing for the pupils the advantages that come from a close coördination of the geography and history of the United States.

Page 10. *Map of North American Ice-Sheets*

The invasion of the United States by the great continental ice-sheets is a topic of very great importance. It is here treated for the first time, and the map given in Fig. 14 should be studied carefully and referred to frequently as the study of the United States proceeds.

Page 12. *Problems and Review Questions*

1, 2, 3. 7, 8; F11.
4. 5; F3.
5. 7, 5.
6. 9; F12.
7. 8; F12.
8. 7.
9. The advantages for manufacturing; 7.
10, 11. 8; *13.*
12. F8.
13. 11.
14. 6; *13.*
15. 7, 8, 9.
16. 7; F6, F8, F17.
17. F7, F8; 9.
18. No. It is a manufacturing and not a food-producing region.
19. F10. Many kinds of fish. *13.*
20. 8. By water and by rail.
21, 22. 10.
23, 24. 10; F14.
25, 26, 27. 10.
28. 5, 11; F16.

Page 12. *Map Studies — New England*

Maine

The old, worn-down mountains of New England are the northeasternmost extension of the Appalachian Mountains. Pupils should turn back to the map, pp. 2–3, to see this relation. The Coastal Hilly Belt of New England is a northward continuation of the Piedmont Belt of the Appalachian Highlands. See map, pp. 2–3. Pupils should note that the White Mountains end in a group of isolated mountain knots in Maine.

1. [G–3]. The figures under the name Mt. Katahdin in the map indicate its elevation.

2. Navigable rivers are shown by a double blue line: Penobscot and Kennebec rivers. Moosehead, Rangeley, and Sebago lakes.

Page 12. *General Questions — New England*

1. Some products are exported. See red export arrows from Boston, Portland, Fall River.

2. See import arrows to same cities.

3. Because the large numbers of manufacturing cities demand large quantities of milk, cream, butter, eggs, vegetables.

4. Mostly from the Western states; some from New York State, Vermont, and New Hampshire. Portland exports some Canadian products during the winter season, when Canadian ports are closed by ice.

5. Cold, comparatively shallow waters. Note extent of continental shelf off New England. See map, pp. 2–3.

6. See names of products printed in red on map. Tobacco and corn.

7. Vermont.

8. In all New England States. See map for special locations. Word "granite" in red.

9. By submergence, or "drowning." See p. 11.

10. Shown by double blue lines on map.

11. Massachusetts.

12. Vermont.

13. Lake Champlain via Richelieu R. and St. Lawrence R. to Atlantic Ocean. See map, pp. 2–3.

14. Buffalo.

15. Compare location of dot for Providence and dot for latitude of Cleveland in margin.

16. Bordeaux.

17. Maine, New Hampshire, Vermont.

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Page 20. *Problems and Review Questions*

1, 2. 18.

3. 19.

4. 18.

5, 6. 18, 19.

7. These are old meander bends of the river which have been cut off from the main stream and left as lakes on the flood plain.

8, 9, 10, 11. 17.

12. 14.
13. 15, 16; F29, F37, F38; *23*.
14. 15, 16; F32.
15. 15; F24; *25*.
16. A.

Page 21. *Map Studies—Northeastern Industrial District of United States*

This map should be the subject of careful study by the pupils. The modeled relief gives a concrete picture of the appearance of the surface of the Coastal Plain and the Appalachian Highlands. After the questions have been answered, the teacher should formulate others to bring out further details of the relation between the regions and the life of the people.

1. New Jersey, Delaware, and Maryland. The inner margin of the Coastal Plain is the ridge that runs southwestward from New York City to Washington. Along its foot runs a railroad line.

2. See name on map. The Piedmont extends from inner margin of the Coastal Plain to parallel ridges of the Appalachian Mountains.

3. See name on map. Note contrast between surface here and surface in regions to the east and west.

5. See names printed on map: coal, oil, gas.

6. Water-power. Note location of water-power plants, indicated by white stars.

7. In western New York State.

8. In New York State, connecting Buffalo and Lake Erie with the Hudson River. Trace its route across state.

9. About 25 per cent.

10. Location on Atlantic coast; good harbors; navigable waterways into interior; conditions favorable to railroad building; rich mineral resources of coal, oil, gas, iron, salt, gypsum, zinc, clay, glass sand; water-power in abundance; good soils and abundant surface suitable to agriculture.

11. Pupils should study location of Boston, New York, Philadelphia, Baltimore, Washington, Pittsburgh, Buffalo, and as many of

the other large cities as time permits. After the growth of each has been explained from a study of the map, pupils should check up their conclusions by reference to the various parts of the text wherein these cities are treated in detail.

Page 22. *Map Studies — Southern States, Eastern Section*

North Carolina

1. Reference to map, pp. 2–3, will give names of regions. Pupils should, however, be able to identify the regions without looking up the names.

3. [F–2]. Mt. Mitchell is the highest point in Appalachian Highlands.

4. Shown by double blue lines. Coastal Plain.

5. Product names in red.

6. [H–2]. Shown by star.

7. [J–2]. Shown by red dot.

8. Fertilizer for agriculture.

South Carolina

1. To fall line (the inner margin of the Coastal Plain where it meets the Piedmont Belt).

Teachers should make sure that pupils understand the significance of the term "fall line." Along this line the rivers flowing from the highlands to the plain have developed falls as they pass from the area of harder to that of softer rocks. The fall line is therefore the head of navigation from the sea, and produces much water-power; hence the development of cities at points where the rivers cross it.

Georgia

1. Refer to map, pp. 2–3, for names of regions if necessary.

5. At fall line it is necessary for goods to be taken from the boats that have come from the coast, and transferred to some other means of transportation. Thus at these points market and commercial centers have grown up. In addition, the water-power affords opportunities for manufacturing.

Florida

5. Key West [G–7]. Compare its latitude with that of the southernmost city in Texas, shown on map, p. 25.

Alabama

1. Refer to map, pp. 2–3, for names of regions if necessary.

2. Coal and iron, two of the chief essentials for the making of steel. Note location of Birmingham with reference to these resources. Birmingham is fast becoming a rival of Pittsburgh in the production of steel and steel products.

3. Cotton.

Mississippi

1. Cotton.

Tennessee

1. Pupils should consider importance of the Cumberland and Tennessee rivers to this state, which is without a coast line.

Page 22. *General Questions — Southern States, Eastern Section*

1. Cotton, shown as an important export from nearly all the leading seaports.

2. To Europe. See red export arrows on map.

3. The importance of the fall line should be reviewed at this point.

4. Shown by red dots.

5. Citrous fruits are raised in Florida, where temperatures are high enough to make their growth possible. The famous Georgia peaches are raised in the cooler climate of the upland regions of the state, where well-drained soils and freedom from destructive frosts provide excellent conditions for their growth.

6. Charleston. See marginal reference.

7. Compare longitude of Mobile with that of Chicago, shown by dot in northern margin of map.

Page 24. *Map Studies — Southern States, Western Section*

Louisiana

1. Mining, lumbering, agriculture.

3. Oil (petroleum).

4. Shreveport [H–3].

6. Because the low, wet land of the delta, with the constantly changing and overflowing distributaries, makes a very poor site for a city. A large river, like the Mississippi, building a delta at its mouth, is continually blocking its own channel. Its waters therefore divide, following several different channels to the sea. These channels are known as distributaries.

7. The location of New Orleans, within a hundred miles of the mouth of a river which is navigable far into the interior of the country, has naturally fostered a great commercial growth.

Texas

2. Along Gulf coast, where tempering effects of the winds from Gulf are felt. The greatest change would occur in the northwestern part of state, which is farthest from Gulf, and where extremes of continental climate are felt. Here westerly winds bring cold weather in winter and hot weather in summer.

6. Cattle and sheep are shipped by rail to meat-packing centers of the Middle West; mules to the North for draft purposes; peaches, rice, cotton, and vegetables to the cities of the North.

9. The western part, which lies in the Great Plains. Parts of the Great Plains are unsuited for agriculture on account of lack of sufficient rainfall. See rainfall and population maps, p. 82.

Oklahoma

2. The zinc is mined, smelted, and used for galvanizing iron and in the making of brass and paint; the coal is used for making light and power (electric and steam); the natural gas is used for heating, lighting, and cooking in the homes located near the producing areas; much of the oil (petroleum) is sent by pipe lines to the Gulf for refining and for export. See Fig. 564, p. 288. The crude oil is used for fuel in engines, ships, and furnaces. Some of the oil is refined for the production of gasoline, kerosene, naphtha, and other lighter oils.

Arkansas

1. Pupils should turn to the map, pp. 2–3, and study the relation of these mountains to region of Interior Highlands.

Page 24. ***General Questions — Southern States, Western Section***

1. Shown by red dots.

2. Names of chief products shown in red.

3. See export and import arrows.

4. Teachers should make sure that pupils understand that the meridian that passes through Greenwich, England, is numbered 0 degrees, and that longitude is reckoned east and west from this meridian. St. Louis is a little farther west from Greenwich than New Orleans. Be sure that pupils pronounce "Greenwich" correctly. See Index and Pronunciations at back of book.

5. Fort Worth and Dallas. Turn to map, p. 23, to find the latitude of Atlanta.

6. No. See map, p. 23, for the latitude of Key West. For a full comparison of the relation of southern Texas to southern Florida in point of latitude, see map, pp. 2–3.

Page 26. ***Map Studies — Southern Division of Appalachian Highlands***

1. Approximately 1000 miles.

2. Appalachian Mountains, Piedmont Belt, and Appalachian Plateau.

3. The Blue Ridge is easternmost range of the Appalachian Mountains, extending from northern Virginia to South Carolina. The name will be found on maps, pp. 23 and 35.

4. Southeastern New York. They are part of Appalachian Plateau.

5. 6711 feet. See map, p. 23, [F–2]. Mt. Washington is not so high. See map, p. 13, [D–4].

6. Southeastward to the Atlantic Ocean. See map, pp. 2–3.

7. Westward to Mississippi River and Gulf of Mexico. See map, pp. 2–3.

8. The larger rivers of northern part are the Delaware, Susquehanna, Potomac, Shenandoah. Those of the southern part are the Kanawha, Holston-Tennessee, Coosa.

9. New York, Pennsylvania, New Jersey, Delaware, Maryland, Ohio, West Virginia, Virginia, North Carolina, Kentucky, Tennessee, South Carolina, Georgia, Alabama.

10. Coastal Plain, Hudson-Champlain Lowland, and Central Plains.

Page 27. *Map and Picture Studies*

1. Coal, iron, lead, zinc, marble, clay, gas, oil.

2. Coal, gas, oil.

3. Iron, lead, zinc, and, to some extent, the marble and clay.

4. Teachers should see that pupils really understand this block drawing, — that they sense the fact that it shows a section through the earth. Special note should be made of the way in which the layers of sandstone, shale, limestone, and fire clay alternate with the coal-bearing strata.

5. In Appalachian Mountains of Pennsylvania, Virginia, Tennessee, and Alabama.

6. Marble. There are also great resources of limestone, sandstone, and granite.

Page 30. *Picture Study — New York City and Surroundings*

1. Its location on the Atlantic Ocean, a good harbor, a long water front providing ample wharfage space and easy communication with the interior.

2. The mainland northeast and west of the city is hilly. On the southwest the New Jersey territory is level, as are Staten Island and Long Island, with the exception of the line of morainal hills which crosses them.

3. Staten Island and Long Island belong to Atlantic Coastal Plain.

4. To the Piedmont division of Appalachian Highlands.

5. New Jersey.

6. The Hudson River and the smaller streams emptying into the ocean here bring down large quantities of sand and gravel. In addition the ocean currents and waves are constantly washing away rock material from the shore lines. All this rock material is caught up by the ocean currents that sweep along the shore, and is dropped where the water is quieter, thus building up sand bars.

7. Hudson River Valley.

8. Because this valley, with the Mohawk Valley and the lowland that skirts the Great Lakes, forms a great natural avenue of transportation and travel. Railroad and road building are easy along this route, and travel by water is possible. The direct route from New York to Chicago necessitates crossing the rugged, hilly country of

the Appalachian Highlands, where there are many natural handicaps to travel and transportation.

9. Brooklyn, Jersey City, Hoboken, Elizabeth, Newark, Passaic, Paterson.

10. Many of their raw materials come from the western parts of our country; others from foreign countries by water. Their fuel is obtained from the neighboring state of Pennsylvania (chiefly coal). Oil for fuel is brought by pipe line from the oil fields of the Middle West to augment the supply from the nearer fields of Pennsylvania and West Virginia.

Page 34. *Map Studies — Middle Atlantic States*

New York State

1. On plains bordering Lake Ontario, shown by names of products in red.

2. Supplement the minerals that can be found among products of New York on this map with those that are shown on map, p. 21.

3. The largest city in the country (New York) is located at the mouth of the Hudson River. Grouped about New York City are many other very large cities and towns. This densely populated area in southern New York offers an almost unlimited market for vegetables and dairy products. The farmers of New York State have soils and climate suited to agriculture, and the means of transportation to the mouth of the Hudson are many and adequate. Hence there has been every incentive to the development of dairy-farming and gardening.

Pennsylvania

1. Pupils should by this time understand the subdivisions of the Appalachian Highlands thoroughly enough to identify without trouble the natural regions of Pennsylvania. Reference to map, pp. 2–3, may be made if necessary.

2. Coal and oil.

4. Make sure that pupils understand the commercial uses of the two kinds of coal, and realize that it is the bituminous variety that is used to make steam power for manufacturing, to run steam engines, to manufacture electricity. Anthracite is used largely for heating purposes.

New Jersey

1. Note that Piedmont Belt of Appalachian Highlands crosses New Jersey, becoming the Coastal Hilly Belt in New York and Connecticut.

2. Zinc.

3. Clay.

4. Water-power; Trenton from falls in the Delaware River, Paterson from falls in the Passaic River. Reference to map, p. 21, where large water-power sites are shown by a star, will be needed in answering this question.

Delaware

1. Note that northwest tip of state is included in Piedmont Belt.

2. Those of Pennsylvania.

3. Located at head of Delaware Bay, it has direct communication by water with ports of Europe and those of Atlantic coast of United States. The map, p. 21, shows that it lies on main railroad line between New York, Philadelphia, Baltimore, and Washington.

5. Delaware peaches.

Maryland

2. Coal in extreme western part of the state; water-power along the fall line.

4. Fishing industries, — especially the raising and gathering of oysters.

Virginia

2. Tobacco.

3. Iron.

West Virginia

1. Coal, oil, gas.

Page 34. *General Questions — Middle Atlantic States*

1. New York, Philadelphia, and Baltimore are the three most important ports.

2. Sugar and coffee (see import arrows).

3. West Indies and Brazil.

4. See data on import arrows.

5. This question offers a good opportunity for a review of the latitude relations between United States and countries of Europe. Children are very apt to think that United States lies in the latitudes of northern rather than of southern Europe.

Page 37. *Problems and Review Questions*

1. *2–3.*
2. 36.
3. Because the rich mineral resources led to the development of industrial life. 26.
4. 26, 27.
5. 27.
6. F39 (White stars show large water-power plants), F67.
7. 41; F73.
8. 29.
9. 29, 30, 31, 32, 33; F52, F53, F54, F56, F57, F64.
10. 29.
11. They acted as a barrier which held most of the settlements to the eastern side of the Highlands. F190 shows distribution of population in 1790.

Page 38. *Problems and Review Questions*

1. 38; *2–3.*
2. 38; F65, F66.
3. 38.
4. 38; *2–3.*
5. 38.
6. Because of the rough character of the land as compared with the surrounding plains.
7. 38.

Page 44. *Map Studies — Central States, Eastern Section*

Kentucky

2. The part that lies in Appalachian Plateau region.
4. Tobacco.
6. [D–6].

Ohio

2. Pupils should trace the southern limit of glaciation as accurately as possible on map of Ohio, p. 35, referring to black arrows on map, pp. 2–3, as a guide. All of Ohio that lies north of this line has glacial soils.

3. Corn, wheat, oats, tobacco, fruit, potatoes. Note that area in which tobacco is grown is a northward extension of Kentucky tobacco district, and that fruit is raised along the lake shore.

6. Farming and mining.

7. Columbus is situated near center of the state, on Scioto River. It stands near eastern edge of Central Plains, in the midst of a rich agricultural district, and is not far distant from coal fields of eastern part of state.

Indiana

1. The state lies wholly in the Central Plains and is therefore characterized by partly level and partly rolling country. It is well drained, principally by tributaries to Ohio River.

3. Corn, wheat, oats, swine.

4. Coal, oil, gas.

Illinois

1. Corn, wheat, oats.

2. Cattle, horses, swine.

5. Note that the larger cities in each state can be identified by the heavy black type in which the names are printed.

6. Because representatives from all parts of the state come to the capital frequently for the meetings of the different departments of the state government. A central location renders the capital almost equally accessible to all parts of the state.

Michigan

1. Pupils should note that Michigan is divided into two entirely separate parts, known respectively as the northern and southern peninsulas.

2. See map, pp. 2–3, for identification of upland region. Then have pupils turn to map of North America, p. 122, to comprehend the extent of Laurentian Upland, most of which lies in Canada.

4. Mining must be the most important occupation in the northern peninsula. Farming and fruit-raising are the leading occupations of the southern peninsula.

6. [E–3].

Wisconsin

2. This should be clear to pupils from their study of map, pp. 2–3. In the driftless area the soils have been made by the disintegration of the native rocks; outside the driftless area the soils of Wisconsin are glacial.

6. The great city of Chicago and the other manufacturing and commercial cities located on the shores of Lake Michigan demand large quantities of milk, cream, butter, and cheese, providing a never-failing market for the dairy products of the Wisconsin farms.

Page 44. *General Questions — Central States, Eastern Section*

1. Level to rolling country (no mountain barriers), good soils, plentiful rainfall, extensive sources of power (coal, oil, gas), and excellent natural transportation routes (Great Lakes and navigable rivers).

2. The corn belt runs through northern and central portions of Illinois, Indiana, and Ohio in this group of states. Turn to Fig. 543, p. 278, and note that it also extends westward into western section of the Central States.

Corn is perishable and cannot easily be shipped long distances. It brings more profit to the farmer if it is fed to hogs and the hogs are sold for meat. For this reason the farmers of the corn belt specialize in raising swine.

3. Michigan. See products in the southern peninsula.

4. Locate tobacco districts of the different states by use of product data printed in red.

5. Copper: Keweenaw peninsula in northern Michigan. Iron: Northern Wisconsin, northern Michigan, eastern Kentucky. Lead and zinc: Southwestern Wisconsin, southeastern Illinois and western Kentucky, southeastern Kentucky. Coal: in various parts of Illinois, Indiana, Ohio, Kentucky.

6. Fish.

7. Because Chicago is a natural distributing point to the great agricultural areas of Middle Western states.

8. The Central States rank high in production of live stock for meat, and Chicago is a natural gathering point for stock for slaughtering and packing. The natural transportation advantages of Chicago are an important factor in its growth as a commercial center for Middle West.

12. Pupils will make their own choice on basis of what they have learned about these states. Some may choose to visit the lakes of Wisconsin, others may choose a trip on the lakes from Duluth to Cleveland, others a sojourn in Kentucky, visiting Mammoth Cave.

13. Each pupil should plan his trip independently, and then describe (either in writing or orally) to the class the interesting sights that he would see. These imaginary trips will be an excellent test of the extent to which pupils have been able to visualize what they have studied.

Page 46. *Problems and Review Questions*

1. 39; *2–3.*
2. 39.
3. 40.
4. F69.
5. 40; F564.
6. 40.
7. No.
8. It would save much transportation of the bulky coal.
9. 36.

Page 51. *Problems and Review Questions*

1. 46; A.
2. 41, 42; *45, 55.*
3. 41, 42; F75.
4. By further deepening of channels and increase of port facilities, and by the greater utilization of the water-power for the generation of electricity.
5. 42; F67, F75.
6. 42.
7. 43.

8. 47.

9. 48; F87.

10, 11, 12. 50.

13, 14. The answering of these questions will require the use of all text material and pictures in the Central Plains section. References to maps, pp. 45, 55, 82, will also be necessary.

Page 54. *Map Studies — Central States, Western Section*

The introductory statement should be read very carefully, and the teacher should explain that the line of demarcation between the Central Plains and the Great Plains is not one which is visible to the eye in traveling across the country.

Minnesota

2. A small area in southeastern part of the state. This territory lies in the driftless area and is bounded by a brown line.

3. The many lakes are the result of glaciation. The deposits of glacial drift dammed many of the streams, leaving lakes in their former courses.

4. Mississippi. Source marked on map [F–2].

7. St. Paul [G–3].

8. Minneapolis.

Iowa

1. No.

2. The driftless area in the northeast, limited by the brown line on the map.

4. Agriculture.

Missouri

1. Pupils should turn to map, pp. 2–3, to review location of Interior Highlands with reference to other natural regions, and to see what states lie partly within them.

5. Jefferson City is centrally located in state, on northern edge of Ozark Plateau and on banks of the Missouri River. Its location is particularly favorable, since it is midway between the mining region of the south and the farming region of the north. The Missouri River is navigable and gives added facilities for transportation.

North Dakota

1. Farming, and some mining of lignite, or brown coal.

2. The Red River. This is often called Red River of the North, to distinguish it from a river of same name which is one of southern tributaries of the Mississippi.

5. Densest population is found in the eastern part of the state, where the most rainfall is received and where the conditions for agriculture are most favorable. Compare population and rainfall maps, p. 82.

6. Yes. The western part of the state is served by government irrigation projects. Pupils should notice red areas on the map, which indicate government irrigation projects. Others will be found in states farther west.

South Dakota

2. Harney Peak [B–4].

4. Agriculture in eastern part of the state, which receives the most rainfall; grazing in western part, which is drier; mining in Black Hills.

Nebraska

4. Agriculture and stock-raising.

Kansas

2. The eastern part of the state, where the most rainfall is received and where the natural avenues of transportation to the east and south (navigable rivers) are found. Compare population and rainfall maps, p. 82.

5. Agriculture, stock-raising, and the production of oil and natural gas.

6. Topeka [F–6].

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Page 54. ***General Questions — Central States, Western Section***

1. From map, p. 82, pupils should trace as accurately as possible the 20-inch rainfall line on this map, and should explain how this line determines the distribution of cities and towns and the occupations of the people.

2. The wheat comes chiefly from Red River valley producing district; large amounts come also from southern Minnesota and from states to the southwest.

3. Kansas City (Kansas), East St. Louis, and Omaha are the three most important markets for cattle for these states. In these cities are located great meat-packing establishments. Cattle are also sent to Chicago from these states.

4. In the wet parts the raising of grain crops is the most important occupation; in the dry parts stock-raising ranks first.

5. Yes. See Fig. 543, p. 278.

6. Wheat. Compare Fig. 544, p. 279, with Fig. 543, p. 278.

7. Pupils should study this route carefully from map, making a list of the larger cities that would be passed in sailing down the Mississippi. Plans should be made to stop in these cities, and pupils should describe the special industries that they might study in each place. The various kinds of agricultural activities that would be observed in fields along banks of the river should be described, and points of scenic interest should not be neglected. Teachers should explain that in the driftless area the bluffs and hills along the river are noticeable and in many places very beautiful.

Page 58. *Problems and Review Questions*

1, 2, 3. 53.
4. 56.
5. 56; *2–3.*
6. 56; F95.
7. 57; F99, F100.
8. 57; F92, F93, F96, F97.
9. 57; *2–3.*
10. 58; F98

Page 63. *Problems and Review Questions*

1. 59, 60.
2. 59; F101, F102, F103.
3. 59, 60, 61; F103, F105, F108.
4, 5. 60.
6. 60; F105.
7. In order that the people who make use of the national forests should contribute toward their maintenance.
8. 61, 62.
9. 62.

10. Because by attracting visitors it increases prosperity in the region and contributes to the health and happiness of the people of the nation.

11. 64.

12. 60; F107.

13. *82.*

14. 60, 61, 62.

Page 64. *Problems and Review Questions*

1. 63; F115.

2. 63; F114.

3, 4, 5. 64.

6. 63.

7. 63; F110, F113, F114, F116, F117, F118, F119.

Page 69. *Problems and Review Questions*

1. Because the mineral resources are more extensive in the southern portion. Compare maps, pp. 73 and 76.

2. 65; F125.

3. 65; F120, F124.

4. 65, 66; *82.*

5, 6, 7, 8. 66.

9. 67; *2–3.*

10. 67; F126; *2–3.*

11. Pupils who have seen, in the East, Mt. Mitchell in North Carolina or Mt. Washington in New Hampshire, or the high mountains of the West, have seen something higher than the walls of the Grand Canyon.

12. 68.

13. The mountains of southern Arizona belong to the region of the western Sierra Madre, which extends southward into Mexico. The plateau of southern New Mexico forms the northern part of the Mexican Plateau.

14. 68.

15. 68; F128, F129, F130, F132.

16. 69; F133.

Page 72. *Map Studies—Northwestern States*

Montana

The introductory statement should be studied carefully with reference to the map for the verification of each statement. The location of the state should be accurately traced on map opposite p. 82, and pupils should note how the diagrammatic representation of surface features on the Political and Economic Map is borne out by the relief shown on the other map.

1. Lewis Range [H–1, 2].
Little Belt Mts. [J–2].
Big Belt Mts. [J–2].
Absaroka Range [J, K–3].
Bear Paw Mts. [K–1].

Teachers should be sure that pupils are not puzzled at finding the name of a mountain range in the region of plains, such as the Bear Paw Range. These maps aim to simplify the physical features of the country by showing only the major natural regions. In many parts of the plains regions groups of hills or low mountains rise above the surrounding lowlands, and conversely, within the mountain regions many fertile lowlands are found along the rivers. To show all these minor features would be to complicate the maps to such an extent that the sense of the location and extent of the major natural regions would be obscured in the pupils' minds.

3. Mining in mountainous regions of the western part of the state; stock-raising in central and eastern parts. The presence of national irrigation projects would indicate that some farming is carried on.

5. Glacier National Park [G, H–1].

6. Blackfeet [H–1]; Flathead [G–2]; Sun River [H, J–2]; Huntley [K, L–2, 3]; Milk River [K, L–1]; Fort Peck [M–1]; Lower Yellowstone [M–2].

Wyoming

2. Absaroka Range [K–3].
Wyoming Range [J–4].
Wind River Range [K–4].
Big Horn Mts. [L–3, 4].
Sweetwater Mts. [K, L–4].
Black Hills [M–3].
Laramie Range [L, M–4, 5].
Medicine Bow Range [L–5].

3. No.

4. Yellowstone National Park [J–3].

5. Coal, iron, oil, gas.

6. Yes. Shown by the two national irrigation projects indicated on map.

7. Cheyenne [M–5].

Idaho

1. The northern and eastern parts of the state are mountainous, belonging to Rocky Mountain region. Between the mountain ranges are valleys. The western and southern parts belong to Western Plateaus and are less rugged. Notice the brown line that appears in southeastern part of state. This is dividing line between Columbia Plateau and Great Basin in this state. Compare map, pp. 2–3. The state should be carefully located on map opposite p. 82, and the differences of relief in the two natural regions noted.

2. Not within state. The Snake River is navigable to western border of Idaho.

4. Mining, grazing, lumbering; some farming.

5. Water-power at Shoshone Falls [G–4].

6. Yes. Indicated by national irrigation projects.

Washington

1. Mt. Rainier, 14,408 ft. [D–2].
Mt. Adams, 12,326 ft. [D–2].
Mt. Baker, 10,750 ft. [D–1].
Mt. St. Helens, 9,697 ft. [C–2].
Mt. Olympus, 8,150 ft. [C–2].

3. Spokane.

4. Seattle owes its growth to its location on Puget Sound. From its wharves ships leave for Alaska, Asia, South America, and many other parts of the world. It lies also in the rich Puget Lowland and is a natural distributing point for the products of this region. Tacoma, Everett, and Bellingham are other important cities on Puget Sound. Still others may be located on map.

5. Olympia [C–2].

6. Chief products printed in red on map.

7. In eastern half of the state. See government irrigation projects shown on map.

8. Dry farming is carried on in parts of the Columbia Plateau. The plateau can be identified by its coloring on map.

9. Because its climate, characterized by much sunshine, is well suited to apple-growing, and because water for orchards can be supplied by irrigation from Yakima River.

10. See export and import arrows going to and from Puget Sound.

11. For the most part, raw products or only partly prepared products.

12. Canned salmon and lumber are the most important; flour and wheat are very important. Iron, cotton, and steel are not products of Washington but are sent to Seattle from other parts of the country for export to Asia.

13. Puget Sound Lowland, particularly the district around Seattle, because this part of the state has rich soils, plentiful rainfall, and direct connection with Pacific Ocean by water. See population map, p. 82.

14. Mt. Rainier National Park [D–2].

Oregon

1. The Willamette River Lowland. Surface, soils, and rainfall favorable to agriculture. Accessibility to Pacific Ocean by means of the navigable Willamette and Columbia rivers.

2. Irrigation must be practiced in all parts of state where rainfall amounts to less than 20 inches per year.

4. Portland, shown by red dot.

5. Coal and water. The streams that flow down the slopes of the high, rugged mountains have many waterfalls. Some of these have already been harnessed; others will be made to produce power in the future.

7. Agriculture, lumbering, grazing; some mining.
8. Salem [C–3].
9. Crater Lake National Park [C–4].

Page 72. *General Questions — Northwestern States*

2. Coal, oil, water.

3. In general, the drier parts, except along the larger river valleys of the arid sections. The higher mountain portions are sparsely settled except in parts where rich mineral ores have been found.

4. Washington, by means of irrigation and dry farming, produces much wheat and fruit in its plateau region. This is equally true for the northern part of the plateau in Oregon. The plateau region in central and southern Oregon and in Idaho is used chiefly for grazing. Most of the crops here are raised for fodder.

5. Timber and mineral ores.

9. Four. From 45 to 49 degrees north latitude.

10. With a ruler, measure the distance between the dot for Seattle and that for San Francisco. By using scale of miles, find out how many miles lie between these two cities. This will be the flying distance: 213 miles. From Salt Lake City to Seattle the flying distance is 210 miles.

Page 77. *Map Studies — Southwestern States*

Colorado

The three introductory paragraphs should be read carefully, and each statement should be checked by reference to the map. Pupils should locate Colorado on map opposite p. 82 and notice how the regions shown on the Political and Economic Map appear when drawn in relief.

1. Arkansas, Rio Grande, and Grand (one of the main branches of the Colorado).

2. Front Range [L–1, 2].
Medicine Bow Range [K, L–1, 2].
Sawatch Mts. [K–2].
Park Range [K–1].
San Juan Mts. [K–3].

3. Pikes Peak, Longs Peak, Mt. Harvard, Blanca Peak, Mt. Wilson.

4. Rocky Mountain National Park [L–1]; Mesa Verde National Park [J–3].

5. In western part of the state, which lies in Colorado Plateau. See national irrigation projects on map.

7. Denver [L–2].

New Mexico

1. Pupils should note that the Colorado Plateau merges with Mexican Plateau in this state. The brown line extending from southern tip of Rocky Mountains to the western boundary of state is boundary line between these two regions. Turn to map, p. 122, and notice the way in which Western Plateaus of the United States extend southward into Mexico.

2. The Rocky Mountain region is the most rugged; on the east are the rolling plains (Great Plains); the plateau regions have broad level spaces and are broken at intervals by mountain ranges. Pupils should understand that the line dividing the Colorado from the Mexican plateau is not one that would be noticeable in traveling across the state.

4. Hides, skins, wool, beef, mutton, goatskins.

5. Yes. Along the Pecos and Rio Grande rivers in southern part of the state. See national irrigation projects on map.

6. Santa Fe [L–4].

Utah

In studying introductory paragraphs each statement should be verified by reference to map. The state should be carefully located on map opposite p. 82, and its relief carefully observed. Pupils should study the drainage area of the Great Salt Lake. Notice that all rivers lead into lake and that not one flows out. The loss of water from lake is due largely to evaporation, which accounts for its salinity.

1. The mountains in northern part, for they cause westerly winds to rise. The winds, cooled by meeting cooler temperatures of higher altitudes, precipitate some of their moisture.

3. Mining and grazing.

4. Salt Lake City [H–1].

Arizona

In connection with introductory paragraph, turn to map, p. 122, and observe extent of the Western Sierra Madre in Mexico. The chief resources of these mountains in Arizona are mineral ores: copper, gold, silver, iron.

In studying descriptive paragraphs about this state, reference to map opposite p. 82 should be made, that pupils may visualize the relief.

Nevada

1. In the northern part of the state a few small branches of the Owyhee River of Oregon, a tributary of the Snake, carry waters to ocean. Turn to map, p. 73, and trace this drainage route. The Virgin River flows across the southeastern tip of state to join the Colorado, which reaches ocean by way of Gulf of California.

2. Most of the streams either disappear into the sands of the Great Basin or empty into lakes that have no outlets.

4. Meat, hides, skins, wool.

5. Mining and stock-raising.

6. Carson City [D–2].

California

1. The Sierra Nevada and the Coast Ranges.

2. Mt. Whitney [D–3].

3. [E–3, 4]; 250 to 280 feet below sea level. See p. 67.

4. Yosemite National Park [D–2, 3]; Sequoia National Park [D–3].

6. Sacramento [C–2].

Page 77. ***General Questions—Southwestern States***

1. Yosemite	Sierra Nevada, California
Sequoia	Sierra Nevada, California
Grand Canyon	Northern Arizona, along Colorado R.
Zion	Southwestern Utah
Rocky Mountain	Northern Colorado
Mesa Verde	Southwestern Colorado

2. The driest places are in the intermontane plateaus. These plateaus lie on eastern side of the mountains of California, in the belt of the prevailing westerly winds. The westerlies, laden with moisture from the Pacific Ocean, encounter the mountains of California, and in rising to cross them, become cooled, giving up their moisture on the western, or windward, slopes. When they reach the plateaus, these winds have very little moisture left to give up in the form of rainfall. As they descend the mountain slopes and cross the plateaus they come in contact with warmer temperatures. The warmer the winds, the more moisture they can hold, and so, as the westerlies pass over the plateaus they become drying winds, causing very arid conditions in some parts.

3. Chiefly the mineral resources which are found in the mountain ranges of the plateaus.

4. Ores, hides, skins, wool, fruits, salt, borax.

5. Manufactured goods of all kinds, mining and agricultural machinery.

9. Flying distance is distance in a straight line. Compute as was suggested in answer to number 10 of General Questions on Northwestern States, p. 97 of this Manual.

Page 79. *Picture Study — San Francisco and its Surroundings*

1. Very hilly, except for flat lowland areas immediately bordering San Francisco Bay.

2. Depressed. The irregular shore line, with its deep indentations of bays, proves this.

3. To the Coast Ranges.

4. The bay is perfectly protected from storms and their ensuing destruction, as well as from attack from the sea by an enemy. The quiet waters of the bay offer safe anchorage for ships, and the long shore line provides ample wharfage.

5. By the Sacramento River valley. The river is navigable.

6. The location on Pacific coast makes world trade by sea possible; the depressed coast provides excellent harbors; the rich valley of California is easily reached by the Sacramento River valley, and its products are thus readily accessible for export.

7. See arrows from and to San Francisco on map, p. 76.

8. See information on arrows, map, p. 76.

Page 81. *Problems and Review Questions*

1. 70.

2. 70; *2–3.*

3. 70.

4. The answer to this question involves an understanding by pupils of the fact that the gold occurs in veins, often deep beneath the surface. A stream, carving its course through the gold-bearing rocks, may encounter the gold vein and gradually wash out the grains and nuggets of gold, carrying them downstream with the sands and gravels. The prospector sifts the sands and gravels along the lower course of the stream and thus secures the gold nuggets. See F207.

5. 74, 75.

6. 80.

7. 71; F139.

8. 74; F145, F146.

9. 74; F140, F141, F142, F143; *82* (heavy rainfall).

10. 78; *73, 76*; F147, F150, F151.

11. 79, 80; *2–3.*

12. 71; *76.*

13. 71; F137, F138, F139.

14. F134.

15. 80; F156.

16. 75; F151.

17. 80.

18. 78; *73.*

19, 20. *73.*

21. The heavy rainfall brought to the mountains by the westerly winds. *82.*

Page 82. *Comparative Map Studies — United States*

1. An effective means of making this test will be to have each pupil place a sheet of thin tracing paper over the colored relief map and then draw the boundaries of the natural regions from his own knowledge of them, and without reference to any other map. He should then be asked to print on the tracing the names of the natural regions from memory. The tracing may then be compared with the map, pp. 2–3, as a test of the pupil's accuracy.

Each pupil should locate without difficulty the St. Lawrence, Mississippi, Missouri, Ohio, Rio Grande, Colorado, Columbia, and Snake rivers, the delta of the Mississippi, Cape Hatteras, Chesapeake Bay (an estuary), the Sonoran and Mohave deserts, and the semideserts of the Western Plateaus.

2. Pupils should detect contrast in forest conditions in eastern and western parts of the country.

3. Map shows that forests are more commonly near the coasts than far inland. Forest growth requires abundant moisture, and portions of the country that are not reached by moisture-bearing winds must of necessity have little forest growth.

4. Only along streams in the Great Plains is there enough moisture to make tree growth possible. Pupils should be able to deduce this answer by comparing the colored relief map with the rainfall map above.

5. The only area of tropical forest in United States is in southern part of Florida. This can be detected by use of map key.

6. The greater portion of the grasslands is in the region of the Great Plains, where the moisture is insufficient for forest growth but sufficient for the growth of grass.

7. Wet-weather streams are those which contain water only during the rainy season, or the season when the snows at their mountain sources are melting.

8. The rainfall map shows that prevailing Pacific-coast winds are from the west.

9. A comparison of rainfall and colored relief maps shows that the westerly winds from the Pacific Ocean, laden with moisture, blow directly against the mountains that border the Pacific coast. Forced to rise, to cross these mountains, the westerly winds are cooled, and their moisture is condensed and falls in the form of rain or snow.

10. Compare rainfall and colored relief maps carefully. Note that the heaviest rainfall in the mountains is received where the mountains are the highest. The more the westerly winds are forced to rise in crossing the mountains, the cooler the air which they encounter; hence, greater condensation and precipitation.

11. After crossing the mountains that border the Pacific coast the westerly winds, which have been robbed of their moisture, are

moving from higher to lower altitudes and from cooler to generally warmer temperatures. Instead of giving up what little moisture they still retain, they tend to take up whatever moisture they encounter, and they therefore become drying winds, causing desert conditions.

12. The western portion of the Great Plains suffers from lack of rainfall for exactly the same reasons that cause the Western Plateaus to be dry. The westerly winds give up on the western slopes of the Rockies the moisture that they have taken up in their passage over the Plateaus, and therefore, when they reach the lower altitudes of the Great Plains, they become drying winds.

13. The southern Appalachian Mountains form the highest part of the eastern United States, and therefore cause the winds passing over them to give up the greatest amount of moisture.

14. The southern part of the country has the warmest temperatures because it lies nearest the equator.

15. For about half of each year southern California receives the hot, drying winds from the deserts of the southern section of the Plateaus, and during these months there is little or no rainfall. This period is during the northern summer and the months just preceding and following it. Reference to Fig. 532, p. 268, will show that during these months an area of extreme heat lies over the land just east of southern California.

16. Farming states: Iowa, Illinois, Indiana may perhaps be chosen. Pupils should select states where rainfall is sufficient and where the surface features are comparatively level. A discussion of the advantages of glaciated and nonglaciated soils could be introduced at this point.

Fruit-raising states: New York, Ohio, Michigan may be chosen for orchard fruits and grapes; also Washington and Oregon for orchard fruits. Pupils should be able to show how the nearness of water bodies, as influences in tempering climate and reducing frost risks, affects the distribution of the fruit-growing industry. For citrous fruits: Florida and southern California may be selected. Pupils should understand the temperature advantages of lower latitudes for the raising of such fruits.

Cattle-raising states: Texas, Oklahoma, Kansas, Nebraska may be selected for the raising of beef cattle; Wisconsin, Iowa, New York, and others for dairy cattle. Pupils should distinguish clearly

between conditions that make dairying profitable and those which lead to the raising of cattle for meat.

Mining states: Colorado, Idaho, New Mexico, Arizona, Pennsylvania. Each pupil should state what kind of minerals he would expect to find in the state or states which he selects.

Lumbering states: Washington, Oregon, Louisiana, Maine, or others may be selected. Pupils should be asked what kinds of wood they might expect to find in region selected, whether hardwood or softwood, and what uses could be made of it.

States where farming by irrigation may be practiced: Pupils may choose any of the states which lie within dry regions where rainfall is insufficient for agriculture. At this point a test could be made to ascertain whether the pupils know where some of the more important government irrigation projects are located.

17. Lakes are most numerous in the northern and northeastern parts of the country, which have been glaciated. Have pupils explain, for review purposes, why lakes are associated with glaciated areas.

18. Many of the lakes of the Western Plateaus are salty because they have no outlets. The loss of water is therefore due to evaporation only, which causes the salt to be left in the lakes, and thus the salinity increases from year to year.

19. Pupils should be able to locate the Colorado River without reference to a map carrying its name. The canyon is that part of the valley which exhibits the greatest relief. After each pupil has decided where he thinks the canyon is located, he should check his decision by reference to map on p. 76.

20. One would expect the best results in salt-water fishing to be obtained where continental shelf is widest, that is, on the eastern and Gulf coasts. Let the pupils explain why fishing is such an important industry in Washington or Oregon, where continental shelf is comparatively narrow.

21. A canoe trip could be made from Lake Winnipeg in Canada, via the Red River and the Minnesota River, and thence down the Mississippi to the Gulf. Let the children explain where it would be necessary to make one portage. The map, pp. 2–3, will help in answering this question.

22. High mountains can be seen in any of the states through which the Rocky Mountains pass. In Arizona one can see a real desert,

as well as in parts of the other states in which lie the Western Plateaus. Compare rainfall and relief maps to ascertain what portions of these states are characterized by the most arid conditions.

Perhaps the most wonderful forests can be seen in Washington and Oregon, on the western slopes of the mountains. Let pupils name other parts of the country in which the forests are worth seeing.

Mountain trout can be caught in many parts of the Rockies, in the Coast Ranges of the West, and in many places in the Appalachian Highlands.

A warm climate in winter can be found in Florida and southern California.

Winter sports can be best enjoyed in northern parts of the country where the topography is hilly or mountainous. Pupils should be able to locate such places by use of relief map.

23. The population map shows clearly sections where population is most dense.

24. The eastern part of United States is nearest Europe, was colonized earliest, is given over more largely to manufacturing than the West. These are the chief reasons for greater density of population; pupils should be asked to suggest other reasons.

25. (1) Eastern New England: One of the chief manufacturing districts of the country, attracting large numbers of people.

(2) Southern New England to northern Virginia: A great industrial region, characterized by large manufacturing cities and great seaports.

(3) Pittsburgh to Cleveland: The center of the great iron and steel industry of United States. The shipments of iron ore from the Great Lakes producing areas meet here the coal from Pennsylvania, and the resulting iron and steel industry attracts large numbers of people.

(4) Western end of Lake Erie: The center of the automobile industry. It includes Detroit (the country's leading automobile manufacturing city) and Toledo, both very important ports on the lake route. Commerce and manufacturing lead to density of population.

(5) Chicago: The second largest city in the United States, leading port of the Great Lakes, and center for the industrial and commercial life of the Middle West.

26. These areas either lie on the outskirts of the most densely populated portions of the country, and therefore share in their commercial and industrial life, or are grouped around the larger cities,

which serve as markets and centers of distribution for the surrounding areas. If time permits, ask the pupils to study each area in detail and explain the specific industries which have attracted the large numbers of people.

27. The Central Plains, with their wealth of agricultural interests and their busy commercial and industrial cities, form the most densely populated region of lowlands in the United States.

28. Except for the sparsely populated area in southern Florida, where the lack of population is due to the combination of excessive heat, much moisture, and a tropical forest, the fewest people per square mile are found in the arid parts of the country which have not been developed by irrigation, and in the higher mountain regions, where the peaks rise above the tree line. Pupils should make a careful comparative study of the three maps, to bring out the relation of rainfall to vegetation and distribution of population.

29. The population map shows that Omaha, Kansas City, Minneapolis, St. Paul, St. Louis, Cincinnati, Louisville, Memphis, and New Orleans have grown up on the banks of the Mississippi River and its larger tributaries. Using the list of cities on p. ix of the Appendix, ask each pupil to select (without reference to a map) five other cities which have developed on important rivers of United States.

30. From population map it is clear that Chicago, Milwaukee, Detroit, Cleveland, Buffalo, and Rochester are large cities which have developed on the shores of the Great Lakes. Using p. ix of the Appendix, as suggested under Question 29, have the pupils select five other lake cities.

31. From the map: Boston, New York, Philadelphia, Baltimore, Washington, Charleston, Savannah, Tampa, New Orleans, Galveston, Seattle, San Francisco, Los Angeles. Supplement this list as suggested in the two preceding questions.

32. The most important feature of the locations of all these cities is their accessibility to natural routes of transportation and trade. The river valleys, whether the streams are navigable or not, are the most commonly used railroad routes; the Great Lakes form the great inland waterway by which large quantities of the products of the Western states reach the coast; the coast cities are the ports from which our foreign commerce is carried on.

33. The cold tundra on the western side of Hudson Bay is a type of region not found in the United States because our country does not extend into latitudes high enough to allow the ground to remain frozen for most of the year.

Page 85. *Problems and Map Studies — Alaska*

1. Coal, gold, copper, tin. See products on map.

2. See export arrows. Salmon, copper, and gold are the most important.

3. Salmon are found off coasts and in rivers where the waters are cool but not so cold as to be frozen most of the year. The Japan Current (a warm current which starts off the eastern coast of Asia and flows across the Pacific Ocean) divides when it approaches the continent of North America, and sends a branch (the Alaska Current) northward along the coast of Alaska. The westerly winds that blow over this current are warmed by it and bring warmer temperatures to the coast of Alaska than would otherwise prevail in this latitude. This warming influence makes the waters off the coast of Alaska suitable for salmon as far north as the mouth of the Yukon River. See text, p. 273, and map, p. 275, for ocean currents. Note the difference in temperatures of the surface water near the coast of Alaska and on the eastern side of the continent in the same latitude.

4. See import arrows.

5. Much of southern part of Alaska is mountainous, and in the plains, where soils and rainfall are favorable, the growing season is short, owing to the high latitude. North of the Alaska peninsula the temperatures are too cold throughout the year to make agriculture possible except on a small scale in the more sheltered valleys. The rainfall is scanty here also.

6. The map shows these in the heavy black type.

7. Fairbanks [J–2].

8. Juneau, the capital [M–3]; Nome, the metropolis [E–2].

9. The Yukon.

10. Pt. Barrow.

11. This is a coastline of depression. The sinking of the land has allowed the ocean waters to enter the river valleys, making deep fiords, and to surround many of the hilltops, making them islands.

12. See text, p. 80. The explanation is the same for Alaska.

13. The Pribilof Islands [D, E–3]. Pupils should find these by study of the products printed in red.

14. Bering, a Danish navigator sailing in the Russian service.

15. Bering Strait and Bering Sea.

16. See text, p. 83.

17. In the valley of the Yukon, which lies near the Arctic circle, the long, sunny days of summer cause the earth's surface to become heated, and give warm weather to the region.

18. The Alaska Current.

19. The westerly winds, warmed by passing over the Japan and Alaska currents, and heavily laden with moisture gathered from the surface of the Pacific, are forced to rise suddenly in coming in contact with the high coast ranges of southern Alaska. The precipitation occurs because of the sudden cooling of these winds; in the higher mountains the temperatures are so low that snowfall results instead of rainfall.

20. Because the westerlies are robbed of great quantities of moisture as they ascend the seaward slopes of the coastal ranges, so that by the time they reach the interior they have little moisture left to precipitate.

21. In the cold tundra portions of the northern part of Alaska. See map opposite p. 124 for the extent of the tundra.

22. They provide meat and milk for food, hides and skins for clothing, and are used as beasts of burden, drawing the Eskimo sleds across the ice and snow.

23. By dog-sleds, over the frozen waters of the river. See text, p. 86.

24. (1) By boat along the southern coast to Cordova, and thence by railroad to Chitina, and from there over the government road to Fairbanks. Trace this route on map. A stop could be made at Juneau, where a visit to a copper mine could be made. Going northward along the coast, one would see the high mountains and the glaciers descending their slopes to the ocean. A stop could be made at Cordova, and from there a visit to a coal mine might be made. Perhaps the traveler might decide to make a stop at Yakutat before going to Cordova, and there visit one of the large salmon-canning factories. The mountain scenery on the trip northward from Cordova would be very beautiful. At Fairbanks one could observe all the activities of a mining and trading center.

(2) A boat trip in summer direct to the port of Kodiak on Kodiak Island. There one could see the fishermen bringing in their salmon catch, and a visit to one of the canneries would reveal all the different processes involved in putting up the fish for export. At Kodiak, if one were fortunate, he might join a sealing expedition to the Pribilof Islands. Fig. 164 shows what the traveler might expect to see there. From the Pribilof Islands the sealing boat might proceed to St. Michael on Norton Sound, where the sealskins would be cured and prepared for export. A trip across the sound would take one to Nome, where one would see some Eskimos, perhaps, who had come from the north with their furs, to be exchanged for winter supplies. Study Fig. 163 to obtain an idea of the general appearance of this northern metropolis.

(3) One might take passage on a boat making its way up the Yukon River in the summer season, taking winter supplies to the people who live in the interior of Alaska (Fig. 166). Frequent stops would be made at the towns and villages along the river, and while the supplies were being unloaded the traveler could stroll about, observing the way in which the people live in these remote settlements. He would find some of the men cultivating their gardens, growing a supply of vegetables for the winter. In other places he would see mining tools, and perhaps some of the gold ore which the miners had taken from the earth. At Dawson, in Canada, the traveler would leave the boat, and from there he could visit the famous Klondike gold field and watch the mining operations by which the gold ores are taken from the earth. From Dawson a stage would take him to Whitehorse, at the headwaters of the Yukon, and from there he could descend to the coast by the railroad which runs from Whitehorse to Skagway. This railroad journey would take him, in the reverse direction, over the old Klondike trail which was followed by the thousands of men who went to the Klondike when gold was first discovered there.

These trips are merely suggestive and will give the teacher an idea of what pupils ought to work out in connection with this question. If supplementary readers are available, children should be urged to consult them for added details of interest on these or other trips in Alaska. The map should always be the basis for the planning of these and similar trips.

Page 87. *Problems and Map Studies — Hawaiian Islands*

1. In the Pacific Ocean, somewhat nearer North America than Asia, and in the approximate latitude of central Mexico and northern Indo-China. Pupils should turn to Appendix, Plate B, in order to visualize this location.

2. Because they are in the midst of a great ocean, and are so small that the tempering effects of the ocean are felt in all parts of the islands. The low latitude makes for warm temperatures, but the extremes of heat are offset by the oceanic influence.

3. The northeast trades. Study the latitude of the islands and refer to Fig. 539, p. 272.

4. By volcanic action. The islands contain active volcanoes, and the soils are found to be of volcanic origin.

5. See import arrows on map.

6. See export arrows on map.

7. Because here the routes of trade and travel between the ports of North America and those of Japan, China, Australia, and New Zealand meet. Appendix, Plate B, makes this very clear.

8. Seattle or San Francisco will be the port of embarkation.

9. Use map of the United States, pp. 96–97, showing railroads, in planning route from home city or town to whichever of these ports is selected. Some pupils living in the eastern part of the country may wish to start their trip from New York, going to San Francisco by way of Panama Canal.

10. Appendix, Plate B, shows that in going from San Francisco to Honolulu one would be on the ocean from six to eight days. The trip from Seattle to Honolulu would take a little longer. The map also shows how long those who come from the east by the Panama Canal route would be on the water in the trip from the western end of the Canal to San Francisco. By a comparison of distances let the pupils estimate how long it would take to go from New York through the Canal, and by the addition of all these figures decide about how many days the full trip from New York to Honolulu would take.

11. Most of them in agriculture; a few in stock-raising.

12. The city of Honolulu, the volcano of Kilauea, a pineapple plantation, and a sugar plantation.

Page 89. *Problems and Review Questions*

1, 2. F172.

3. 88; F172.

4. The formation of this lake made the engineering work simpler on the Atlantic end of the canal than on the Pacific end, where the mountains had to be cut.

5. 88.

6. F170, F172.

7. 88.

8. 88; F171.

9. 88.

10. Pacific coast countries. 89.

11, 12. 89.

Page 91. *Problems and Review Questions*

1, 2. 90, 91.

3. 90.

4. The windward slopes would surely be forested.

5. Because they are able to work in heat that white men cannot endure.

6. Winter.

7. 90; F174, F177.

8. 90.

9. *118–119.*

Page 92. *Review Questions and Map Studies — Philippine Islands*

1. China on the north, French Indo-China on the west, and the Dutch East Indies on the south. See map, p. 250.

2. Roughly, these islands lie between the parallels of 6 and 20 degrees north latitude. This means that they are in the belt of the northeast trade winds, which are warm and heavily laden with moisture, bringing to the islands plentiful rainfall. Because the islands are surrounded by water, they are not subject to such high temperatures as one would expect from the latitude alone. The combination of heat and dampness, however, makes a climate in which it is uncomfortable for white people to live. See map, p. 256, for rainfall conditions.

3. Agriculture, lumbering, and some mining (in southern Luzon, in Samar, and in northern Mindanao).

4. Manila. On the island of Luzon.

5. See export arrows.

6. No. Exports are raw materials and imports are manufactured goods.

7. Some pupils have undoubtedly seen Manila hemp. Those who have not seen it are probably familiar with the name, and know that large quantities are imported into the United States for the manufacture of the better qualities of twine and rope.

8. Because of the tempering effects of the ocean, felt in all parts of the islands.

10. Because the warmth and dampness of the climate tend to make them less energetic than the people of the United States, most of whom live in climates where frequent changes of temperature give them much energy.

Page 98. *Map Studies — Political Map of the United States*

The natural regions of the United States are shown on this map in the brown and green colors, and are identical with the regions shown on map, pp. 2–3. The regions are not named, however, for by the time pupils reach this point they should be sufficiently familiar with the natural regions of their own country to recognize them without their names. The study of this map will offer the teacher an excellent opportunity for testing the knowledge of the pupils on this point.

5. New York State.

6. New Jersey and Delaware.

7. Maryland and Virginia.

8. Georgia and South Carolina.

9. The bay on which Mobile, Alabama, is located [J-4].

13. The states on the right bank are those on the west side of the river; those on the left bank are on the east side.

17. Where the southern boundary line of Utah and Colorado crosses the eastern boundary line of Utah and Arizona, causing the

states of Utah, Colorado, Arizona, and New Mexico to meet at the point of intersection.

24. The Snake River.

29. In eastern part, because here the population is much more dense, and many more railroads are needed to link the different communities together.

30. The railroad lines carry either initials or abbreviations indicating their names. Any whose names pupils cannot interpret may be looked up in a railroad gazetteer. This work should be done by pupils themselves in laying out suggested routes of travel.

The suggested trip would be as follows: Boston to New York via New York, New Haven, and Hartford; New York to Albany and Buffalo via New York Central or West Shore (New York Central runs along the eastern side of the Hudson and the northern side of the Mohawk, and West Shore along the western side of the Hudson and the southern side of the Mohawk); from Buffalo to Detroit by Michigan Central, which runs through Canada on the north side of Lake Erie, or by New York Central, which runs south of Lake Erie; from Detroit to Chicago by Michigan Central through southern Michigan, or by the New York Central through northern Ohio and Indiana; from Chicago to St. Paul by Chicago, Burlington and Quincy; from St. Paul to Glacier National Park via Great Northern; from the Park to Seattle by Great Northern; from Seattle to Portland by Great Northern or Northern Pacific; from Portland to San Francisco via Southern Pacific.

31. The return trip from Los Angeles to Denver by way of the Grand Canyon would be made via Santa Fe Railroad. From Denver the trip to Chicago could be made by the same railroad. The states crossed from Los Angeles to Chicago would be California, Arizona, New Mexico, Colorado, Kansas, Missouri, Iowa, Illinois.

32. Chief seaports are shown by the red dots; chief lake ports by the red triangles. Populations can be taken from the table, p. ix of the Appendix.

33. See list of cities, p. ix of the Appendix.

34. Notice that the limits of the time zones are shown by broken red lines crossing the map from north to south. There is a difference of one hour in time between each zone and the one or two adjoining it. The time in Chicago is one hour earlier than that in New York;

in San Francisco it is three hours earlier than in New York; in Denver it is two hours earlier than in Washington, D.C.

35. This question, and the questions following, which deal with comparative latitude and longitude, should be studied carefully, and pupils should gain from them the facts that the United States lies in the latitudes of southern Europe, and of China and Japan in Asia; also that the eastern coast of the United States is north of the western coast of South America.

Page 100. *Problems and Review Questions*

1. 98; F190.

2. 98.

3. Pupils should describe routes in detail from their knowledge of the region.

4. The rivers were the early avenues of travel. *2–3.*

5, 6, 7. 99.

8. Iron. 289.

9. 282.

10. In order to save the exhaustible fuels.

11. F75. It is now possible to transmit hydroelectric power several hundred miles.

12. 99.[1]

13. Individual answers.

14, 15, 16. 100.

Page 102. *Problems and Review Questions*

1, 2. Individual answers.

3. 101.

4. 101; F194.

5. 32, 101.

6. 101; F194, F195, F196.

7. 101.

8, 9. 102.

[1] A clear, concise explanation of the conservation of natural resources will be found in Fisher's "Resources and Industries of the United States." Ginn and Company.

Page 106. *Map Studies—Canada*

1. Pupils should identify as many of these regions as possible from this map, and should then turn to map, p. 122, and note the relation between the natural regions of the United States and Canada.

2. Caused by glaciation. Lake Winnipeg [E–4]; Lake Athabaska [D–4]; Great Slave Lake [C–3]; Great Bear Lake [B, C–3].

3. From Lake Winnipeg along the North Saskatchewan River to Edmonton, and up along the river to the point where a northwestward bend almost meets a southeastward bend of a small tributary to the Athabaska River. A carry would have to be made across the neck of land between these two bends. Then down the Athabaska to Athabaska Lake, thence down the Slave River to Great Slave Lake, and from there down the Mackenzie River to its mouth.

4. At the mouth of the Yukon River in Alaska.

5. These are due to the sinking of the land along these coasts.

6. On the western shore of the Boothia Peninsula [E–2].

7. The needle of the compass would move slowly in the opposite direction from that in which you were moving, pointing always toward the magnetic pole.

8. The Columbia River. See map, p. 73.

9. The Red River. See map, p. 55.

10. In the Great Plains region of Manitoba, Saskatchewan, and Alberta. See products printed in red.

11. Because Canada does not produce enough wool and woolen goods to meet the needs of the people.

12. Yes. In the drier parts of the Great Plains and in the Rocky Mts., because here, where the rainfall is insufficient and the mountain slopes are too rough for agriculture, grazing can be carried on successfully.

13. Because here the intense cold of the winters leads to the growth of heavy fur coats on the fur-bearing animals. Nature gives the animals these heavy coats to protect them against the cold.

14. Cod, herring, salmon. See products printed in red.

15. Whale and seal.

16. The Central Plains, the southern part of the Laurentian Upland, and the southern portions of the Great Plains which receive more than 20 inches of rainfall each year are best suited for farming. (See rainfall map, p. 124, and compare with the products printed in

red on the Political and Economic Map.) The northern parts of the two latter regions have temperatures which are too low for agriculture on a large scale. The Great Plains are best suited to cattle-raising, and the Laurentian Upland and the western mountains and plateaus to mining.

17. Iron, copper, silver, and nickel in the south-central portion; gold and coal in the far-western portion. See products in red.

18. Vancouver.

19. See data on export and import arrows.

20. Because Hudson Bay is frozen over for many months during the year.

21. The initial letters printed on the railroad lines indicate that the chief railroads in Canada are the Canadian National (C. N. or Can. Nat.) and the Canadian Pacific (C. P.).

22. (1) Southward, through Panama Canal and across North Atlantic Ocean; (2) southward along coast of South America, around Cape Horn, and northward through Atlantic Ocean; (3) westward across Pacific Ocean, through Indian Ocean, Red Sea, Suez Canal, and Mediterranean Sea to Atlantic Ocean, and thence northward to England. See Appendix, Plate B.

23. Yukon [A–3].

25. The British Empire.

26. No. See eastern margin of map for location of London.

27. Yes. See eastern margin of map for location of Rome.

28. Halifax. Compare its longitude with that of the Bermudas, shown by dot in southern margin of map.

29. The Panama Canal is about four degrees farther west.

30. San Francisco.

Page 109. *Problems and Review Questions*

1. Climatic conditions more favorable than in any other part of the country. 103; *124.*

2, 3. 103; *124.*

4. 273.

5, 6. 103.

7. Temperature decreases from low to high latitudes (that is, from equator to poles) and from low to high altitudes (that is, from sea level to greater heights above the earth's surface).

8. 103, 104; F199.
9. 104.
10. 103.
11. 104.
12. 105; F201.
13. 104.
14. 104, 105; F200, F201.
15. 106.
16. 105, 106, 108; F203, F204; *107.*
17. 104, 105, 108, 109; *107.*
18. 108, 109.

Page 110. *Problems and Review Questions*

1. 110; *107.*
2. British Empire.
3. 110; F210, F211.
4. 110.
5. The warmer air from over the water comes in contact with the cold ice of the glacier; condensation occurs, and fogs result.
6, 7, 8. 110.
9. On account of the fogs and the icebergs.

Page 113. *Problems and Review Questions*

1. 111; A.
2. 111.
3. 111; *122.*
4. 111.
5, 6, 7. 111, 112; *124.*
8. Volcanoes indicate youth. 111.
9. 112.
10. 112; F216, F217, F218, F219; *118–119.*
11. 113; F212, F213; *118–119.*
12. 113.
13. *118–119.*
14. 111; *118–119.*
15. 112.
16. 112, 113.
17. 113.

Page 115. *Problems and Review Questions*

1. 114; *118–119.*
2. 114; *124.*
3. 114.
4. 114; F220, F222; *118–119.*
5. 115; *118–119.*
6. 115.
7, 8. 114.

Page 117. *Map Studies — Mexico, Central America, and the West Indies*

The Gulf of Mexico and the Carribbean Sea may be thought of as the American Mediterranean. Geography must include a study of the life at sea as well as of the life on land. This map, pp. 118–119, will help every pupil to picture the busy commercial life on the waters between North and South America. Most of the trade shown on the map is between the tropical countries and the countries of the north temperate zone in America and Europe. Work out with the pupils some general explanation for this.

1. With the United States and the countries of Europe. See information printed on export and import arrows.
2. For its mining and agricultural life.
3. One would expect to find much heat and plentiful to excessive rainfall.
4. The combined heat and moisture, especially of the lowlands in southern and central Mexico, take away energy and initiative. The tree and plant life is so abundant that little effort has to be made to obtain food, and dwellings can be made very simply and easily as shelters from sun and rain. The people, therefore, are under no necessity to work hard to live and consequently are not industrious.
5. Cotton.
6. Because the warm temperatures of their country make it possible to wear thin clothing.

7. See products printed in red on the map.

8. Coal and oil.

9. Shown on map by red dots.

10. On the southern margin of the Mexican Plateau. See map, p. 122, for the names of the natural regions of Mexico. Pupils should note what regions of Mexico are southward extensions of the natural regions of the United States.

11. These can be identified by the heavy black type in which their names are printed on the map. Chihuahua [C–2]; Durango [D–3]; Zacatecas [D–3]; San Luis Potosi [D–3]; Guanajuato [D–3]; Guadalajara [D–3]; Puebla [E–4].

12. See information on export arrows. Limon, Costa Rica, is the most important port of export for bananas.

13. Coffee and coconuts. See export arrows.

14. Great Britain owns British Honduras.

15. Guatemala, Honduras, and Salvador united in the fall of 1921 to form the Republic of Central America.

16. Sugar, coffee, cacao, fruits. See export arrows.

17. Sugar, coffee, cacao, fruits, woods, tobacco, cotton. See export arrows.

18. They import most of their manufactured goods. See import arrows.

19. Cuba.

20. Porto Rico and the Virgin Islands.

21. Great Britain, France, Holland.

Note that the purple boundary lines are used to separate the groups of islands belonging to the different nations, and that in the case of the British possessions the purple lines divide them into governmental units.

The Bahama Islands are divided by a line which separates the islands to the northwest from Caicos and Turks Islands to the southeast. The northwest group comprises the government of the *Bahama Islands*, while Caicos and Turks Islands belong to the government of *Jamaica.*

Similarly, the British islands belonging to the government of the *Windward Islands* are separated by a purple line from

those belonging to the government of the *Leeward Islands*. *Barbados* forms a separate government by itself, and, similarly *Trinidad* and *Tobago* make up a governmental unit.

In the same way the purple lines indicate the French islands in the Windward and Leeward groups, and show the islands belonging to Holland, Colombia, the United States, and Cuba, respectively.

22. Shown by red dots on the map.

23. The Gulf Stream. See map of ocean currents, p. 275.

24. The northern, or windward side.

25. The northeast trade winds. Note the latitude of the West Indies, and refer to Fig. 539, p. 272. The arrows on the rainfall map, p. 124, indicate the direction of these prevailing winds.

29. Bogotá, the capital of Colombia. Location of Bogotá shown by star [K–7].

Pupils should turn to map of South America, p. 126, and locate Bogotá and Lima, the capital of Peru, noting that the eastern coast of North America lies north of the western coast of South America.

Page 121. *Problems and Review Questions*

1, 2, 3. 115.
4. 115; *124*.
5. 116, 117, 120; F224, F226, F227; *118–119*.
6. 116.
7. 90, 91; *118–119*.
8. Spanish.
9. *118–119*.
10. 120; F234.
11, 12, 13, 14. 120.
15. Individual answers.

Page 123. *Map Studies — North America*

The study of this map should be in the nature of a summary of all the details that have been learned regarding the different parts of the North American continent. In particular,

pupils should fix in mind the relations between the natural regions of Alaska, Canada, the United States, Mexico, and Central America.

1. These extend along the western coast from Aleutian Islands in Alaska to the southern tip of Lower California. Another group extends from Pt. Hope in Alaska to Santa Fe in New Mexico. Here a break occurs, but the mountains continue southward from Rio Grande through Central America. Another break occurs between southern end of the Sierra Nevada and northern end of the Western Sierra Madre. The latter continues southward through Mexico, joining the Eastern Sierra Madre just south of Mexico City.

2. Endicott Range
Aleutian Range
Alaska Range
Coast Ranges
Rocky Mountains
Cascade Mountains
Sierra Nevada
Western Sierra Madre
Eastern Sierra Madre
Southern Sierra Madre

3. Yukon Plateau
Northern Interior Plateau
Columbia Plateau
Great Basin
Colorado Plateau
Sonoran Desert
Mexican Plateau

The map opposite p. 124 should be studied carefully that pupils may see that the plateaus are not level, but broken by numerous mountain ranges.

4. In the eastern part of the continent. These can be identified by the use of the key on the map. Pupils should note that there are no old, worn-down mountains south of the United States.

5. The Arctic Coastal Plain in Alaska and northern Canada.
The Atlantic Coastal Plain of the United States.
The Gulf Coastal Plain of the United States and Mexico.
The narrow coastal plain of western Mexico.
The eastern coastal plain of Central America.

6. The United States. Note that only a comparatively small area of the Central Plains extends into Canada, and that Mexico does not share in this region.

7. Canada and the United States. Note that, with the exception of plains bordering the coast, Mexico and Central America have no lowland regions.

8. The United States.

9. Because this part of the continent has undergone glaciation. Notice, by comparing Fig. 14, p. 10, with this map, that most of the lakes of the continent are found north of the southern limit of the ice-sheets.

10. Much sinking has occurred along these coasts, leaving many of the hilltops and mountains as islands and allowing the sea waters to enter the river valleys, creating long, deep estuaries and fiords.

11. A very irregular coast, with many deep estuaries; the land barren except for hardy grasses, mosses, and lichens; in places glaciers descend to the water's edge, with icebergs breaking off from time to time.

12. Cape Prince of Wales.

13. The Isthmus of Panama, now cut by the Panama Canal.

14. From Cape Hatteras northward the irregular coastline indicates the sinking of the land.

15. On the Atlantic coast from Cape Hatteras to the Gulf of St. Lawrence. North of the gulf there are many good harbors, but they are closed by ice for so many months in the year that they are almost useless. On the Pacific coast San Francisco has a good harbor, due to sinking of the coast. From Puget Sound northward to and along the southern border of the Aleutian Range there are many good harbors. Pupils should be able to explain how the Alaska current on the west keeps the northern harbors of that coast open through a much longer season than the harbors of the eastern coast in the same latitudes. The Labrador Current (see map showing ocean currents, p. 275) has exactly the opposite effect on the eastern coast from that of the Alaska current on the western coast.

16. The Yukon, the Mackenzie, the St. Lawrence, the Mississippi-Missouri, and the Rio Grande. The list of principal rivers of North America in Appendix, p. iv, shows the respective lengths of these rivers.

17. The Missouri. See p. iv of Appendix. This river is usually considered as the main upper portion of the Mississippi, since it is larger and longer than the eastern branch that bears the name "Mississippi."

18. On the western side of the Boothia Peninsula in northern Canada [B–10].

19. In the northern parts of the continent, where cold temperatures prevail throughout the year. There is very little plant life here, and the native people have to work hard to find food and to provide materials for clothing and shelter.

20. In the southern portions, where food grows in abundance and where very little clothing and shelter are needed.

21. Because in the cold arctic regions all of man's energy must be devoted to securing food, clothing, and shelter, and only a bare existence can be wrested from the lands; in the southern portions the heat robs men of initiative and energy, and in many places, where heat is combined with excessive moisture, fevers are prevalent and living conditions unhealthful. In the temperate regions the cold seasons alternate with the warm seasons, living conditions are healthful, and by working part of the time men can earn enough to enjoy, in the remainder of their time, the recreations which attract them.

22. The dry lands may be irrigated and the swamp lands drained, providing more opportunities for agriculture; forest lands may be cleared; unhealthful places in the tropical parts may be cleansed and made healthful by modern methods of sanitation.

23. Compare this map, showing natural regions, with the rainfall map, p. 124. The southern and eastern portions of the Laurentian Upland in Canada, the Central Plains and Gulf and Atlantic Coastal Plains of the United States, and the Eastern Coastal Plain of Mexico and Central America south of the tropic of Capricorn. The Piedmont Belt and the Appalachian Plateau of the United States also provide large areas of well-watered farming lands, and there are certain large valleys of importance in this connection, notably the Puget Trough and the Valley of California.

24. In parts of the Great Plains of Canada and the United States, in portions of the Western Plateaus of the United States, and to some extent in the Mexican Plateau.

26. Mexico. The map opposite p. 124 shows that a large area of Central Mexico is a desert.

27. Longs Peak [E–9] and Mt. Shasta [E–7].

28. Pt. Barrow.

29. Arctic circle shown by broken black line and plainly marked.

Page 124. *Comparative Map Studies — North America*

1. Reference to the map key shows that, except for a small portion of the coast of Texas, the Atlantic and Gulf Coastal Plain receives from 40 to 80 inches of rainfall each year.

2. The Appalachian Mountains are much lower than the mountains of the western part of the country and are located in a region which receives ample rainfall throughout the year; hence they are covered with forests. The mountains of the West and Southwest are, in general, much higher, many of their upper slopes and summits rising above the tree line. Furthermore, many of the Western ranges are so located that they receive only comparatively little rainfall. In answering this question, careful comparison should be made between the rainfall and colored relief maps.

3. Parts of the Central Plains receive from 20 to 40 inches of rainfall during the year; the remainder receives from 40 to 80 inches.

4. The Central Plains lie between two mountainous regions, — the Appalachian Highlands on the east and the Rockies on the west. The rainfall in these higher regions flows down the mountain slopes, adding its volume to the generous amount of precipitation received by the plains themselves. From these two sources the many rivers of the plains are fed.

5. The Central Plains are preëminently fitted for agriculture. Comparatively level, with plentiful rainfall and fertile soils, they possess all the necessary conditions for successful farming on a large scale. Transportation across these level plains is easy, and since the trade connections with markets and ports can easily be made, agriculture is further stimulated and commerce is very important.

6. In going from Lake Michigan to Rocky Mountains it is necessary to cross Mississippi and Missouri rivers. Pupils should be able to answer this question without reference to a map bearing the names of the rivers.

7. Near the mountains the plains receive the westerly winds which have crossed the mountains and have given up most of their moisture on the western slopes. Consequently, when these winds reach the plains, they have a tendency to absorb rather than to precipitate moisture, leaving the plains with a scanty supply of rainfall.

8. The most favorable places for crossing the mountain area to the Pacific coast would be the valleys of the larger rivers, whose heads are found well up in the mountains. By following such a river to its source and then crossing the divide to the head of a westward-flowing river, one would find his most favorable route. Pupils should turn to the map, pp. 2–3, to ascertain to what extent the early pioneers followed this plan. This test should be followed by a study of the transcontinental railroads as shown on the map, pp. 96–97, making note of the way in which the railroad builders have made use of the river valleys.

9. The rainfall map shows clearly that a southern route would take one through a drier region than a northern route.

10. The slight amount of rainfall in the Great Basin is due to the fact that the Basin lies just east of the Sierra Nevada Mountains. The westerly winds deposit their moisture on the western slopes of the mountains and have little left when they reach the Basin.

11. The forests among the Rocky Mountains are located on those slopes that receive sufficient rainfall to provide for tree growth and are not so high that the cold temperatures prevent forestation.

12. The high mountains lie near the coast in British Columbia, and the westerly winds, blowing directly against them, and forced to rise rapidly, give up a large amount of moisture on their slopes. The westerlies have come for a long distance across the ocean and contain a very large amount of water vapor. Their encounter with the mountains gives to the coast of British Columbia an annual rainfall of over 80 inches.

13. The rainy season on the Pacific coast is during the winter. North of San Francisco, however, rain falls during all the months, with the heaviest precipitation in the winter. Pupils should acquire the habit of studying carefully the information regarding seasonal distribution of rainfall, and frequent attempts should be made to interpret and explain this distribution.

14. Tree growth is prevented along the northern edge of the continent by the extremely low temperatures. Note the extent of the tundra as shown on the relief map.

15. The tundra begins just north of the Aleutian Range (see map, p. 84). South of this range the temperatures of the Alaskan coast are warmed by the northern branch of the Japan Current,

known as the Alaska Current (see map, p. 275), and therefore tree growth is possible. North of the range the temperatures are so cold that only the hardiest grass and a few mosses and lichens can grow. The tundra extends as far as these cold, arid, or semiarid conditions prevail. On the eastern side of the continent the tundra extends into much lower latitudes than on the western side, because on the east the cold Labrador Current sweeps down along the Labrador Peninsula and into Hudson Bay.

16. Pupils should be able to think out the possibility of Asiatic wolves crossing the frozen waters of Bering Strait and so reaching Alaska. Some scientists believe that long ago tribes of Asiatic people crossed from Asia to North America by this same ice bridge and became the ancestors of our American Indians.

17. The rainfall map shows the interior of Alaska to be lacking in sufficient moisture for tree growth to any extent.

18. The combination of high mountains and the low temperatures of the latitude account for the presence of glaciers in Alaska. The winds blowing from the sea against the mountains give up much of their moisture in the form of snow, which accumulates on the mountains in such quantities that it gradually hardens into ice and forms perpetual glaciers.

19. The route from Hudson Bay to Europe lies so far north that it is closed by ice except in the summer months.

20. The rainfall map shows that the heaviest rainfall in Greenland occurs along the southern coast, where the moisture-bearing winds strike the edge of the plateau.

21. The Mexican Plateau lies between two ranges of mountains (see map, p. 122) and is thus shut off from the moisture-bearing winds that otherwise might reach it from the Gulf of Mexico and the Pacific Ocean.

22. Central America and the northern portion of South America have the dense tropical forests that are characteristic of regions lying near the equator. By using the key to the relief maps pupils should locate the one area in the United States that has a tropical-forest growth.

23. The rainfall map shows that the prevailing coast winds in Central America and the West Indies are from the northeast. Reference to the wind diagram, Fig. 539, p. 272, will enable the pupils

to identify these winds as the northeast trades. These winds, blowing over the ocean from a cooler region to a warmer, are heavily laden with moisture and, upon encountering the higher lands of the West Indies and Central America, are forced to precipitate that moisture in the form of rain.

24. To represent winter conditions the relief and vegetation map should show as frozen Bering Strait, the Arctic Ocean, Baffin Bay, Hudson Bay, and the Gulf of St. Lawrence. The covering of snow in an ordinary winter would extend as far south as Washington in the east, St. Louis on the Mississippi, Denver in the central part of the country, and southern Oregon in the west. In the higher parts of the Rocky Mountains and the Appalachian Highlands the snow would extend farther south. At this point it would be advisable to test the pupils to find out whether they understand how it is that high altitudes in low latitudes reproduce temperature conditions similar to those found in higher latitudes at lower levels.

25. The Southern states, bordering on the Gulf of Mexico, and the southern part of California remain always green. Pupils should bear clearly in mind the fact that winter conditions and the southward extent of the snowfall vary greatly from year to year. By turning to Fig. 531, p. 268, and studying the course of the isotherm of 30 degrees as it crosses the United States, pupils may get an approximate idea of the average southern limit of the snow line.

26. It is possible for people to live out of doors in the winter along the coast of Florida, the Gulf coast, the southern states of the Western Plateaus, and in California. Turning again to Fig. 531, p. 268, the isotherm of 50 degrees, which crosses the United States, marks the approximate boundary of the area where people can live out of doors with comfort in the winter.

The winter resorts are in Florida, along both the Atlantic and Gulf coasts of the peninsula, and in southern California. Other resorts, where the weather is somewhat cooler, but warm enough for comfort, are in southern Virginia, the Carolinas, and the northern parts of the Gulf states.

27. The coasts receive, in general, the heaviest rainfall because they receive the moisture-laden winds from the bodies of water that border them. No matter what the prevailing winds may be, every coastal area is subject to frequent winds from the ocean.

28. The northwestern interior lies in the belt of the prevailing westerlies. Between the interior and the Pacific coast are continuous ranges of mountains which cut off the interior from the coast and prevent the moisture-bearing winds from reaching it.

29. The winds starting over the ocean and moving landward would contain moisture, rather than those moving in the reverse direction. The surface of the ocean provides abundant moisture for the winds to absorb as they pass over it. The land, except in places where there are large lakes, provides no such supply of moisture.

30. The colored relief map shows that the semideserts and deserts extend from southeastern Oregon to the southern end of the Mexican Plateau. Compare with the rainfall map and note that this entire area receives less than 20 inches of rainfall per year, — an amount which is insufficient for agriculture. In such an area irrigation is a necessity if crops are to be grown.

31. In the northern part of the Great Plains of Canada the growing season is restricted by the temperature conditions of the higher latitude and the interior location and is not long enough to encourage much agriculture.

32. In answering this question, pupils may be asked to review their study of the distribution of people in the United States. Bearing in mind the general principles which have been learned in that study, they should explain the density of population in Canada and Mexico.

In Canada the greatest density is found in the Maritime Provinces, along the St. Lawrence River, and bordering the Great Lakes. This is due to the important commercial activities to which the lakes, the river, and the seacoast give rise, and to the industrial activities which are connected with the commerce. The rainfall map indicates that this part of Canada receives plentiful rainfall for agriculture, and the relief map shows that the surface is generally level. Favorable conditions for agriculture increase the desirability of this part of Canada for human occupation.

Pupils should note the tongue of population density of 2 to 25 which extends westward in the southern part of the Canadian Great Plains. Here, although the rainfall is insufficient, are the level plains and the fertile soils that make it worth while to employ irrigation and dry farming for the raising of grain crops. This also is the area through which the Canadian transcontinental railroads have been

built, attracting settlers because of the means of communication with the outside world.

Pupils should be asked to compare very carefully the rainfall and relief maps of Canada, and to forecast where the population will become more dense in Canada as the total population increases.

In studying Mexico, pupils should note that the area of densest population is associated with the arid and semiarid conditions of the Mexican Plateau. The hot, damp, unhealthful conditions of the lowlands along the coasts in the latitude of Mexico are uninviting and even dangerous; the people therefore find living conditions much pleasanter in the interior plateau. In Central America the denser regions of population are located near the western coast. Compare the relief map, which shows that the mountains (higher and cooler) are found on that side of the isthmus.

33. The sparsely populated areas of North America are, in general, in those regions which lie so far north that the continued cold makes life a struggle, or in those that border the coasts in latitudes so low that the combined heat and dampness cause unhealthful conditions and take away energy and initiative.

In addition to these extremes are the areas which are not inviting to human habitation because of exceedingly arid conditions, such as those found in the deserts of the southwestern part of the United States.

34. Since there will probably not be time for each pupil to explain all the areas of densest population, let each pupil choose one of the more densely settled districts and make a thorough study of the conditions which have led so large a number of people to make their homes there. For example, let one pupil explain why the densest population in Mexico is centered around the city of Mexico; another, why the island of Jamaica has more people per square mile than Cuba; another, why the densest population of the northwestern part of the United States is centered about Puget Sound.

In working out these problems the pupils should consult the comparative maps carefully and should supplement this study with careful examination of the political and economic map of the area under scrutiny. Superficial generalizations should be avoided, and the teacher should see that the pupils work out accurately the specific detailed information which will be needed to explain adequately the density of population.

In the study of North America the pupils have become familiar with many types of environment that they will meet again and again in their study of other continents. They have built up slowly and carefully a mental picture of the life in their own continent and have made a study of that continent as a whole.

They will now consider other continents — South America first of all — and will at once make certain broad comparisons of the natural regions of each new continent that they study with those of the continent or continents already considered. This will bring to their attention certain differences in the continents and will awaken a lively interest in the new lands that they will visit as the lessons in geography progress.

Page 127. *Map Studies — South America*

1. The Amazon and Parana rivers extend far into the heart of the continent, facilitating exploration by providing natural avenues by which explorers could penetrate into the interior. To a lesser extent the Orinoco, Magdalena, and São Francisco rivers have also been useful in exploration.

2. See key to map.

3. Note that in addition to the prominent areas of old, worn-down mountains the western coast is bordered in some places by coast ranges which belong to this class of mountains. See western Colombia, Ecuador, and Chile.

4. Because they are so much older that they have been greatly worn down by the action of the rivers and the atmosphere. This wearing-down process has rounded their slopes and summits and has reduced them in altitude to such an extent that, except for the highest parts, they are well forested. The Andes are so much younger that they are much more rugged and rise to far greater heights, the altitudes making tree growth impossible on their upper slopes. See map opposite p. 156.

5. Use map, p. 123, for this comparison. The general arrangement is similar: young, rugged mountains in the western part; broad areas of plains in the central part; and old, worn-down mountains in

the eastern portion. This is a comparison that pupils should make carefully, noting that the young, rugged mountains of South America are but a southward extension of the type of mountains found all the way from Alaska to Panama.

6. North America has the more irregular coast line and therefore has more good harbors.

7. 12,000 to 13,000 feet. Elevation figures appear on map. The lowland areas average from 500 to 1000 feet in elevation; the Brazilian Highlands, 2000 to 5000 feet; the Guiana Highlands, 2000 to 6000 feet.

9. Mt. Cotopaxi, Ecuador, [B–3]; Mt. Chimborazo, Ecuador, [B–3]; Mt. Misti, Peru, [B–4]; Mt. Illimani, Bolivia, [C–4]; Mt. Aconcagua, Chile-Argentina, [C–6].

10. Amazon, Parana, Orinoco, São Francisco, Madeira.

11. Amazon Lowlands, Parana Lowlands, Orinoco Lowlands.

12. Argentina. Note that on this map and the other physical maps of continents in the same series the political boundaries are shown by black dot-and-dash lines. On the political and economic maps the political boundaries are shown by purple lines.

13. [D–5].

14. On the boundary line between Peru and Bolivia: Lake Titicaca.

15. Delta of the Orinoco [C–2]; Delta (or mouths) of the Amazon [D–3]; the estuary of the Plata River [D–6].

16. The eastern coast. On the western side, throughout almost the whole length of the coast, the mountains descend abruptly to the sea, and there are few good harbors.

17. The Isthmus of Panama.

Page 129. *Problems and Review Questions*

1, 2, 3. 125.

4. Because much of the interior is either tropical jungle or high, barren mountain country.

5. To New York.

6. 125; B.

7. Individual answers.

8, 9. 127.

10, 11. 125.

12. A.
13. 127, 128; *126.*
14. 128, 129; *126.*
15. 127, 128, 129.
16. 127.
17. *126*; F240.
18. *126.*

Page 133. *Problems and Review Questions*

1. 130; Appendix, page viii.
2. 130; *126.*
3. *126.*
4. 130; *135.*
5. 130.
6. 130, 131.
7. Because of its rich resources.
8. 130, 131. Because these regions have the richest resources and the most healthful living conditions.
9. Portuguese.
10. Because the Portuguese were the earliest settlers.
11. 132; *135.*
12. 132; F253, F254, F255, F256, F257, F258, F259.
13. 132; *135.*
14. 128, 131; F245, F246, F247, F248, F249, F251.
15, 16, 17. 132; *135.*
18. 131.
19, 20. 133.
21. 130; *126.*

Page 134. *Map Studies — South America, Northern Section*

1. In the Amazon Basin. See products printed in red on map. The rubber is sent to Europe and the United States.

2. The map opposite p. 156 shows that the Amazon Lowlands are covered for the most part with a dense tropical forest. The tropical jungle is very difficult to clear for agriculture, and therefore very few food crops are raised there.

3. No. They are raised also in the Plateau of Central Brazil and in some parts of the Andes Mountains. See products in red.

4. Pto. Colombia, Santa Marta, La Guaira. See information on export arrows.

5. In the plateau and mountains of Peru.

6. The alpaca and the vicuña. See products in red.

7. Cacao. See export arrow from Guayaquil and the products of Ecuador.

8. See products in red. Gold, platinum, copper, silver, tin, precious stones.

9. To Europe and the United States. See export arrows.

10. By way of the Panama Canal.

11. Santos, Rio de Janeiro, and São Salvador in Brazil, La Guaira in Venezuela, and Pto. Colombia and Santa Marta in Colombia.

12. See export arrows.

13. Iron.

14. Because the land along the river is very low and marshy and is frequently flooded. It is, moreover, covered with dense jungle growth. These conditions make railroad building very difficult, and since the river is navigable for ocean-going ships as far as Manaos, the necessity for a railroad has not been great enough to justify the expense of building it.

15. Along the coasts of Peru and Brazil. See products in red.

16. To Europe and the United States. See export arrows.

17. One might buy a coffee plantation, or plan to raise sugar or cotton. One might establish a rubber plantation, or become a buyer of the crude rubber which the natives bring out from the Amazon Basin. If one wished to go into the interior, he might undertake cattle-raising or he might buy a tract of temperate-forest land and go into the lumbering business. Another possibility would be the mining of iron in southern Brazil. Gold might be sought in the highlands in the eastern part of the country.

19. These can be identified by the heavy black type in which they are printed.

20. The tropical-forest conditions in the Amazon Lowlands prevent the establishment of settlements except on the immediate banks of the rivers. In the Parana Lowlands the geographical conditions are much more favorable, but the northern part of these lowlands, shown on this map, are rather inaccessible, being shut off from the

western coast by the Andes, from the eastern coast by mountains and uplands, and from all contact with the northern parts of the continent by the vast Amazon jungle. When more railroads have been built in these Parana Lowlands, the settlements will undoubtedly increase rapidly.

21. The northwestern part, particularly Colombia. See export arrows.

22. First of all, more people and more money are needed to develop the natural resources of the continent. Railroads must be built to take the products of the interior to the coast for export, and harbors must be improved to attract more foreign shipping. Careful search must be made for resources of coal and oil for use in providing power for manufacturing. The water-power should also be developed for this purpose. With the development of power on a large scale, and the importation of machinery and skilled labor from Europe and the United States, South America will progress rapidly along industrial lines.

23. The climatic conditions along the Amazon make it impossible for white men to live there and retain their health and energy. Moreover, except for the rubber and the hardwood timber, the tropical jungle is not known to have valuable resources. Agriculture is impossible, and the lowlands contain no valuable minerals. Consequently there is almost no inducement to white men to try to develop the region. In southern Brazil the conditions are exactly reversed. Here the climate is suitable for white men, and there are rich natural resources,—good soils, abundance of grazing lands, valuable mineral resources (notably iron and gold), and large areas of timberland. This part of the country has naturally attracted the progressive white people and is therefore the best-developed portion of Brazil.

Page 136. *Problems and Review Questions*

1. 134.
2. 134; *135*.
3. 134; *156*.
4. F262.
5. 134, 136; F260, F261, F262.
6. 134, 136; *135*; F261.

Page 137. *Problems and Review Questions*

1. 134, 136.
2. Yes. A; F539.
3. Sailing vessels.
4. 137; F263, F264.
5. 137; *135*.
6, 7, 8. 137.

Page 138. *Problems and Review Questions*

1. 138; *135*; F267.
2. 138; *156*.
3. 138.
4. 138; F266.
5. 138; *135*.
6, 7. 138.

Page 139. *Problems and Review Questions*

1. 138, 139; F269.
2. 139.
3. 139; *135*; F270.
4. 139; *135*.
5. The higher parts, where temperatures are cooler.
6. Found on summits of highest mountains, where temperatures are very cold, owing to great altitude.
7. *135*.
8. Equator.

Page 142. *Problems and Review Questions*

1. 140; *135*.
2. 140, 142; *156*.
3. 140.
4. 141; *156*; F271, F275.
5, 6, 7. *135*.
8. Lack of coal and iron and backwardness of the people.
9. 140; *135*; F272.
10. B; F245.

11. On account of difficulties of overland travel one would go by boat northward and through Panama Canal.

12. 141.

13. 141; F274.

14, 15. 141; F279.

Page 143. *Problems and Review Questions*

1. 142; *135.*

2. 142, 143; *156.*

3. 142, 143; F278, F279.

4. 142; *135, 145.*

5. 142; F244, F277.

6. Plateau lies in belt of dry southeast trade winds. *156.*

7. It is fed by streams from the high, snow-capped mountains.

8. 143.

9. 143; *135.*

10. 143; F280.

11. 143.

Page 144. *Map Studies—South America, Southern Section*

1. Argentina. See export arrows.

2. Because it has vast areas of grasslands, large portions of which receive enough rainfall for successful agriculture, and other parts of which can produce crops by irrigation. These grasslands are easily cleared for cultivation and are very fertile. The drier parts are suited to grazing on a large scale.

3. Buenos Aires [D–6].

4. Wheat. See products of Chile printed in red, and export arrow from Valparaiso.

5. Chiefly for fertilizer; also in the manufacture of high explosives and munitions.

6. See export arrows.

7. Punta Arenas. See export and import arrows.

9. The three most important imports are coal, iron, machinery.

10. Oil and water.

11. Uruguay and southern Argentina (Patagonia). See products in red.

12. In Paraguay.

13. Rubber, coffee, meat, hides and skins, wool, wheat, corn, nitrate, copper, tin. In describing the uses of these products, or any others that may be chosen, ask pupils to consider which we could best do without and which are absolutely essential to our comfort and prosperity. The discussion that will ensue from these questions will stimulate interest in the varied uses of the different products.

Page 147. *Problems and Review Questions*

1. 146; F281, F282, F284.
2. 146; *145*; F287, F288.
3. 144, 146; *156*.
4. 146.
5, 6, 7. 147.
8. 147; B.
9. 144.
10. 146; F281, F282.
11. To provide revenue for the government.
12. 146.
13. Shortened distances between Chilean ports and those of North America and Europe, and thus facilitated trade.

Page 152. *Problems and Review Questions*

1. 148.
2. 150.
3. 151, 152; *145*; F300.
4. 151; F298.
5. 128, 129; *156*.
6. 144, 146; *156*; F292.
7. 152; *145*.
8. 151.
9. 152.
10. Individual answers.

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Page 153. *Problems and Review Questions*

1. 142, 152.
2. 152; F305.
3. 153; *145*.
4. 153; F304.

5. 152; F302.
6, 7. 153.

Page 154. *Problems and Review Questions*

1. 154; F306, F307, F308.
2. 154; F309, F310; *145.*
3. 154; *145.*
4, 5, 6. 154.

Page 155. *Problems and General Review Questions*

1. A.
2. 140.
3, 4, 5. 125.
6. 131.
7. 128, 129.
8. 146, 149, 154.
9. 153.
10. 130.
11. 131; *135.*
12. 142.
13. 146.
14. 138.
15. 125.
16. 152.
17. 154; *145.*
18. *135, 145.*
19. *135.*
20. *135, 145.*
21. 131; F253; *145.*

Page 156. *Comparative Map Studies — South America*

1. The colored relief and vegetation map shows that the great tropical forest of South America lies in the basin of the Amazon.

The rainfall map shows that the yearly rainfall amounts to more than 80 inches. Let pupils compare this with the average annual rainfall in their own state.

The rainfall and relief maps show that this tropical forest has a very low altitude, lies very near the equator, where the temperatures are high throughout the year, and receives an excessive amount of rainfall. Such a combination of great heat and dampness makes for unhealthful conditions under which it is almost impossible for white people to live.

2. Throughout the Amazon Basin, and in some portions of the surrounding areas, the rainfall is much too heavy for successful agriculture. The northeast and southeast trades, blowing from the Atlantic Ocean, are responsible for the heavy rains.

3. Southern Brazil, Uruguay, the Argentine Pampa, and parts of the Parana Lowlands receive about the right amount of rainfall for agriculture. See information printed upon the rainfall map for the seasonal distribution. Agriculture is practiced by the people in these regions. See map, p. 145, for the chief products that are raised.

4. The extensive grasslands are found in the Argentine Pampa and in the unforested parts of the Parana Lowlands. In the Pampa, where the greatest area of grasslands is found, the rainfall ranges from 20 to 40 inches per year. Farther north, in the Parana Lowlands, the rainfall ranges from 40 to 80 inches. The grasslands are found in those parts of the lowlands where the rainfall averages only a little over 40 inches.

5. The southeast trades reach the coast of Brazil south of Cape St. Roque and north of the tropic of Capricorn.

6. The northeast trades reach the coast of South America north of the equator and east of the Isthmus of Panama.

7. The prevailing westerlies reach the western coast of South America, south of the parallel of 35 degrees south latitude.

8. The rainfall of southern Brazil comes in the months of January, February, and March. See information printed on rainfall map.

9. The summer months in southern Brazil are January, February, and March. In what season do these months fall in the northern hemisphere?

10. The temperate forests (shown on relief map) are found in northeastern Brazil, southern Brazil, Paraguay, northwestern Argentina, and the central valley of Chile. Smaller areas are scattered along the slopes of the Andes from Colombia to Cape Horn. Pupils should be able, by using the relief and vegetation

map, to answer this question without referring to a political map to identify the countries.

11. On the west coast of the continent from 5 degrees to 35 degrees south latitude, the prevailing winds blow from the land to the sea. They are therefore dry winds and have no moisture with which to water the coastal area.

12. At about 35 degrees south latitude the westerly winds begin to affect the western coast of the continent. In blowing against the land from the ocean they bring plentiful rainfall to the western slopes of the mountains, but after they cross the mountains they become drying winds. Thus they cause the dry belt to cross southern South America in a northwest to southeast direction. If pupils have been thoroughly trained in the interpretation of the winds and rainfall in the western half of the United States, they should be able to answer this question easily. If the question presents difficulties the teacher should at this point review the climatic conditions of the western United States.

On the eastern side of the southern part of the continent the westerlies are blowing from land to sea and are therefore dry winds. At the very southernmost tip (Tierra del Fuego) the land area is so small and so completely surrounded by water that there is an increase in rainfall.

13. The Bolivian Plateau is almost completely surrounded by mountains, and therefore whatever winds succeed in reaching it have been robbed of their moisture and are dry. In this connection pupils should recall the similar conditions prevailing in the Mexican Plateau and the plateaus of the western United States.

14. The rainy season in Chile is in winter. In this part of the southern hemisphere the winter months are June, July, and August. Pupils should work out these months for themselves, remembering that the seasons in the latitude of Chile are in the opposite months from the seasons in the same latitudes north of the equator.

15. In southern California the rainy season is also in winter. The months in this case are December, January, and February.

16. The semiarid lands of western and southern Argentina have rivers of sufficient size to be used for irrigation. The relief map shows that these rivers rise in the high slopes of the Andes, where they are fed by the melting ice and snow during the summer season.

17. The southeast trade winds, blowing across the broad, low Amazon Lowlands, increasing in warmth as they approach the equator, gather more and more moisture as they near the mountains. Upon encountering the Andes they are forced to rise, and in doing so are cooled and forced to precipitate their moisture on the eastern slopes of the Andes.

18. In general the heaviest rainfall in Panama and Central America falls on the eastern coasts, where the warm, moisture-laden northeast trades come in contact with the land and in rising are forced to give up their moisture.

19. In answering this and similar questions pupils should be trained to study the latitude and should become familiar with the simple system of winds as shown in Fig. 539, p. 272. Once this arrangement of winds has been mastered, a question of this type can be answered without the aid of a map showing wind arrows.

20. Most of the people live near the coast rather than inland, in the lowlands rather than in the mountains, and near rather than far from the rivers.

The coastal areas have the advantages of easy communication with the rest of the world; the lowlands are more accessible than the highlands and offer better opportunities for agriculture; locations along the rivers provide water supply and have the advantages of being on natural routes of trade and travel.

21. The Amazon Lowlands are characterized by a dense tropical jungle which makes agriculture impossible and travel exceedingly difficult. Only along the river and its larger tributaries is it possible for people to live and eke out a living.

22. A comparison of rainfall and population maps reveals the fact that the sparsely populated areas of western and southern Argentina correspond very closely with the areas which receive the least rainfall. Pupils should be able to interpret aridity in terms of living conditions and so to understand without difficulty why the population is sparse in these parts of the country.

23. The western part of the continent is made up very largely of high mountain ranges which descend abruptly to the coast. The plateaus of Peru and Bolivia are comparatively level areas between the mountain ranges, and offer the best locations for the establishment of cities. But since the plateaus are very dry and are cut off

from the sea and the rest of the continent by mountains, making travel and communication difficult, there must be some other reason for the growth of cities in these regions. Pupils should turn to the maps, pp. 135 and 145, and study the products of these plateaus. The different minerals found here give the clue to the reason for the many cities.

24. The population map shows that the most densely populated parts are districts immediately surrounding the largest cities.

25. In Brazil the excellent harbor and the rich resources of the surrounding country (including the coffee district of São Paulo) have led to the development of Rio de Janeiro as a great seaport and commercial center, attracting large numbers of people. Pupils should work out the advantages of this location in greater detail.

The mouth of the La Plata River is the natural outlet for the products of the rich agricultural lands of the Argentine Pampa, the Parana Lowlands, and Uruguay. It is natural that two great cities should have grown up here, and that the surrounding area should be densely populated.

In Chile the densest population has been attracted to the rich Central Valley, where nearly all the important agricultural and industrial interests of the nation are centered. Pupils should work out in detail the reasons why the Central Valley has been the most important region in the nation's development.

In northern South America large numbers of people have been attracted to the belt of country running from Caracas on the coast of Venezuela to Bogota in Colombia. This strip of territory lies north of the tropical forest and receives less rainfall than the Amazon Lowlands. Living conditions are therefore much better here than in most parts of South America just north of the equator. Grasslands take the place of tropical jungle in this area, and people are thus enabled to engage in herding and agriculture.

26. The population is most likely to increase in central Chile because of its mineral wealth, its climate, and its agricultural possibilities; in the Argentine Pampa because of its vast possibilities for agriculture; in Uruguay for the same reasons; in southern Brazil chiefly because of its climate and its mineral resources. If time permits, the pupils should be asked to study each South American nation separately, with the object of forecasting in what portions of its area

the population is likely to increase. In solving these problems the study of the comparative maps should be supplemented by frequent reference to the political and economic maps. Pupils should not forget that men will face many hardships and dangers for commercial gain from the exploitation of natural resources, and that therefore climatic disadvantages and topographic barriers do not always indicate sparse population.

27. In regions of less than 10 inches of annual rainfall farming is often carried on by means of irrigation if streams are available. Stock-raising, especially sheep and goats, may often be carried on with profit. In some cases minerals of value are found in arid sections, and in such cases mining comes to be an important occupation. In South America irrigated agriculture is carried on in parts of western Argentina; the raising of sheep is carried on in arid Patagonia; the mining of nitrate in the Atacama Desert of Chile and of metal ores in the Plateau of Bolivia is very important.

28. The young, rugged mountains of South America are those which make up the great system of the Andes, extending from the northwestern tip of the continent to Tierra del Fuego.

29. The crests of these mountains are higher and sharper, and the slopes steeper, than those of old, worn-down mountains. The latter are usually well forested to within a short distance of their summits, while the young, rugged mountains rise far above the tree line, exhibiting bare, rocky summits.

30. The Andes resemble the Rocky Mountains of North America.

31. The old, worn-down mountains of South America are in Venezuela and the Guianas in the northern part of the continent, and in southern and eastern Brazil.

32. These mountains resemble the Appalachian Highlands of North America.

33. The great lowland areas are the Amazon Lowlands, the Orinoco Lowlands, and the Parana Lowlands. Pupils should be able to locate and name these lowlands from the relief map without reference to the map showing natural regions or to the text.

34. The widest part of the continental shelf around South America is off the southern coast of Argentina.

35. The Falkland Islands are located on the extreme edge of this shelf.

36. The icebergs come from the great ice-sheet of Antarctica, which lies south of Cape Horn. Turn to the map of the South Polar regions opposite p. 266 and find out how far it is from Cape Horn to Antarctica in a due-south line.

Page 158. *Map Studies — Europe*

1. [E–6].

2. Old, worn-down mountains.

3. The British Isles.

4. 5000–8000 feet. See figures on map.

5. Westerlies. See wind arrows on map.

6. 40–80 inches on the extreme western slopes; 20–40 inches farther east; 10–20 inches on the eastern slopes.

7. On the lower slopes, bordering the sea, where the surface is less rugged and communication and trade with other countries are easy by water.

Page 159. *Map Studies — Europe (First Group)*

1. Atlantic Ocean, North Sea, Baltic Sea, Arctic Ocean, Black Sea, and Caspian Sea.

2. 100–1000 feet. See figures on map.

3. Ural Mountains.

4. Carpathian and Caucasus Mts.

5. Valdai Hills [M–4].

6. Central Highlands.

7. The rainfall in the western part is 20–40 inches except for a few places where 40–80 inches are received each year. In the central part the rainfall is 20–40 inches; in the eastern part, 10–20 inches.

8. Because the westerly winds, heavily laden with moisture gathered from the ocean, begin to give it up when they encounter the land. By the time these winds reach the eastern part of the plains most of their moisture has been lost.

9. In the western and central parts, where the rainfall conditions are favorable to agriculture and where trade with the rest of the world can be carried on easily by water.

Page 159. *Map Studies — Europe (Second Group)*

1. France, Belgium, Germany, Czechoslovakia, Austria. The mountains are old and worn-down. Chief ranges are Vosges, Black Forest, Thüringer Wald, Harz, Erz Gebirge, Böhmer Wald. They resemble the Appalachian Mountains in general appearance.

2. The Central Plateau of France and the Bohemian Plateau of Czechoslovakia.

3. The Vosges and the Black Forest.

4. Coal, lignite, iron, tin, lead, copper, potash, clay.

5. 20–40 inches, except in the Vosges, Black Forest, and a few other small areas, where 40–80 inches are received.

6. Along the Rhine, in Central Germany, and in the Bohemian Plateau.

Page 160. *Map Studies — Europe (First Group)*

1. Sierra Nevada [C–3]; Pyrenees [C, D–2]; Apennines [F–2]; Alps [E–1]; Carpathians [H, J–1]; Caucasus [L, M–2].

2. Spain and Portugal (Iberian Peninsula), Italy, Greece.

3. Spain, France, Italy, Switzerland, Austria, Czechoslovakia, Hungary, Rumania, Jugoslavia, Bulgaria, Greece.

4. In Spain and Portugal.

5. On the western slopes of the highlands of the peninsulas. Ranges from 40 to 80 inches, falling mostly in the winter.

6. 50°–60° in winter; 70°–80° in summer. Only about 20° difference between winter and summer.

Page 160. *Map Studies — Europe (Second Group)*

3. The larger part of the United States lies south of the parallel of 40 degrees. Pupils should be able to answer this question from their studies of comparative latitudes in connection with the maps of the United States.

4. The tables on p. viii of the Appendix show that Europe is only a little larger than Canada, and approximately one fifth larger than Brazil. Be sure that pupils understand these areal relations clearly, and as their study of the different countries progresses, emphasize the significance of the large number of European nations

that are crowded into a space only a little larger than one of our great American countries.

5. South America is nearly twice as large as Europe; Asia, more than four times as large.

6. At the Strait of Gibraltar.

9. Note that all the maps in this series show the scale in both miles and kilometers. This question, and the following ones bearing on comparative distances, might well be correlated with the arithmetic lesson. Pupils should learn to compute distances on a map quickly by the use of the ruler and the scale of miles.

11. To Petrograd (Russia): the North Sea, the Baltic Sea, and the Gulf of Finland. To Odessa (Ukraine): the Mediterranean Sea, the Ægean Sea, and the Black Sea.

12. The Mediterranean Sea. In answering this question pupils should trace the brown line marked 100 fathoms from the southern tip of Norway all the way to the eastern end of the Mediterranean Sea, and westward from there along the northern coast of Africa. All the water between this line and the coast is less than 100 fathoms deep. Notice that, according to this guide, all of the North Sea is less than 100 fathoms deep, while only a small portion of the Mediterranean is as shallow as that.

13. In the northern part (Scandinavia, Finland, and northern Russia).

14. Because it has a much more irregular coast line.

15. The Volga.

16. The Danube, Dnieper, Don rivers.

17. The Po.

18. The Rhone.

19. The Rhine and the Elbe.

20. The Oder and the Vistula.

21. The British Isles.

Page 162. *Map Studies — Europe*

1. The Carpathians, Transylvanian Alps, mountains of Jugoslavia, Austrian Alps.

2. Hungary, Austria, Jugoslavia, Rumania.

3. The Po.

4. In Spain, France, Italy, Albania.

Page 162. *Problems and Review Questions*

1. 157.
2. Individual answers.
3. See Appendix, p. viii.
4. 217.
5. 162.
6, 7, 8. 157.
9. 158, 159, 160, 162; F311, F312, F313, F314, F315, F316.

Page 163. *Problems and Review Questions*

1. 158.
2. The mountains of northwestern Europe are old and worn-down; those of southern Europe young, rugged, and much higher.
3. 158.
4. 162; F317.
5. 162.
6. 158, 159; F314.
7. 163; F531, F532.
8. 163.
9. 158, 159; *171, 182–183.*
10. 160; F315.
11. 158, 159, 160, 162.
12. 162; *161.*

Page 167. *Picture Study — London and its Surroundings*

1. The Thames.
2. The river flows from west to east, as shown by the comparative width of the stream in the western and eastern parts of the drawing.
3. There is much level land, especially in the river valleys; gentle hills rise above the valleys.
4. Because it is the capital and one of the chief ports of England. The great commercial development has led to the building of railroads from all parts of Great Britain to London.
6. The prime meridian (0°).

Page 169. *Problems and Review Questions*

1. A.
2, 3, 4. 164; *171.*
5. 164; *161*; F322, F323.
6. F311; *171.*
7. 165; *216.*
8. 165.
9. 166.
10. Individual answers.
11. 166, 167, 168; F329, F330, F335, F336.
12. 169; F337.
13. 169.
14. 167; F330, F331, F333.
15. B.

Page 170. *Map Studies — North Sea Countries*

In this map, p. 171, the importance of water bodies is again emphasized. The North Sea is a great highway of travel. Commodities and ideas are freely exchanged between the North Sea countries, and the commercial life on that sea tends to bind together the people of those countries.

The large amount of important geographic information given in this map reflects the actual conditions in this busy part of the world. Here there are many large cities, many navigable rivers, many railroads, and a great variety of natural resources which the people make use of in their industries.

1. That this is one of the most important regions in the world for ocean traffic and commerce.

2. Because the countries in this part of Europe are very densely populated, and much food must be imported to satisfy their needs. See population map, p. 216.

3. Because they have large supplies of coal and iron and can obtain raw materials from all parts of the world by water. The possessions of Great Britain, scattered all over the world, supply the British Isles with a great variety of raw materials.

4. Coal. Oil has recently been discovered in England, and it is possible that further discoveries in the future may add this product to the fuel resources of the nation. In Scotland the oil-bearing shale rocks are distilled to obtain the petroleum.

5. Yes. The insular environment of the British Isles has led the people to build a great merchant marine, and English ships collect raw materials from all parts of the world.

6. Yes. For the same reason.

7. See export arrows and red dots indicating ports.

8. Because their countries are chiefly lowlands and are well suited to agriculture. Denmark and the Netherlands have no mineral resources of any importance, and so have not developed manufacturing on a large scale. The uplands of southern Belgium contain coal and iron, and this country has developed large manufacturing industries.

9. Because its waters are cold and comparatively shallow.

10. Indicated in red on map.

11. The upland regions offer excellent conditions for grazing, and the great woolen-manufacturing plants provide a market for the wool.

12. The ports that should appear in this list are shown by red dots on the map.

13. We manufacture large quantities of these goods ourselves, and we also export large quantities, but Great Britain produces some kinds and qualities of cloth and metal goods that we either do not manufacture or do not produce in sufficient quantity to supply our needs.

14. Foods and raw materials. These England needs to import from us, and in exchange she sells us her cloth and metal goods.

15. It provides a short cut from the North Sea to the Baltic Sea, saving time and money for the ships going to and from the Baltic ports.

16. Because the low, swampy conditions along the immediate shore line are very unfavorable to the building of large cities. These coastal margins are often flooded, and so the cities are built some distance inland, where conditions are more favorable, and the river channels are dredged to a depth to admit the largest ocean liners. Compare the location of New Orleans.

17. Southern Norway, lumbering and cattle-raising; southern Sweden, agriculture.

18. In the southeast. See products printed in red.

19. Railroads are shown by red lines. London, Edinburgh, Brussels, Hamburg, Berlin, Paris.

20. Greenwich, near London [G–6]. About 12 degrees of west longitude and about 14 degrees of east longitude.

Page 172. *Natural Resources — Scandinavia*

1. In the northern part, north of the arctic circle.

2. The higher mountain slopes of Norway.

3. In the mountains of Sweden.

4. Herring.

5. Off the eastern and southern coasts.

6. In southern Sweden, on the Baltic Lowland.

7. In Norway and the mountainous parts of Sweden.

8. Iron, copper, timber, good fishing grounds, good agricultural lands, water-power.

9. By an effort to attract tourists. More hotels should be built and better transportation facilities in the mountains provided.

Page 173. *Problems and Review Questions*

1, 2, 3. 170.

4. 173. Manufacturing will develop as increasing use of water-power is made.

5. 172; *201*; F340.

6, 7. 170.

8. 172.

9. 172; F339; *201*.

10. F158. Used as the Eskimos of Alaska use them.

11. Because the interior is so mountainous, while the fiords along the coast make good harbors, at the heads of which cities naturally develop.

12. 173; F344.

13. 173; F341.

14. 172.

Page 174. *Problems and Review Questions*

1. 174; *171*.

2. 174.

3. 174; F346.

4. 174; *171.*
5. 174; *216.*
6, 7, 8, 9. 174.

Page 178. *Problems and Review Questions*

1. 175; *171.*
2. 175.
3. 175, 176; F349.
4. 176; F348. Holland is near all the great cities of the densely populated northern part of Europe; hence markets for dairy products are plentiful.
5. 176.
6. 176, 177; *260.*
7. 177; *171*; F354, F355.
8, 9. 177; *171.*
10. 178; F358.
11. 178; F356, F361, F362, F363.

Page 179. *Map Studies — Central Europe*

From the many cities, navigable rivers, canals, and railroads and the great variety of natural resources and products in this part of the world (see map, pp. 182–183) it is clear that this is a land of dense populations, of old or long-established civilizations, — a land of many nations.

It is here that great changes in political geography, due to the World War, have been and still are taking place. Special attention should be paid by pupils to the meaning of the various purple lines and shadings. The map will be found to be of very great value in discussing current events in European affairs.

1. By studying the map carefully pupils will have no difficulty in preparing this list.
2. Havre [G–4].
3. United States, Canada, and countries of South America. See export and import arrows.

4. The cultivation of vineyards, the making of wine, the raising of silkworms, the manufacture of silk.

5. Netherlands. See explanation in left lower corner of map for key to land below sea level.

6. Agriculture and stock-raising.

7. In western and southeastern parts.

8. In the Central Highlands region, midway between the northern and southern borders of the country.

9. Hamburg, which can be reached by rail or by canal and river from Berlin, and which is usually open throughout the winter season.

10. [L–1].

11. Note that the canals are indicated by the alternating open and solid blue lines. Up the Rhine, through the Rhône-Rhine Canal to the Doubs River, thence to the Saône, and down the Rhône to Marseille. Another route would be up the Rhine to the mouth of the Moselle, up the Moselle to Epinal, the head of navigation, then by canal to the head of navigation on the Saône, and thence down the Saône and Rhone.

12. Up the Seine and Yonne, by canal from the Yonne to the Saône, down the Saône, past Lyon, to a point just above Arles, then by the Canal du Midi and the Garonne River to Bordeaux.

13. Up the Rhine to mouth of the Main, up the Main to the head of navigation, by canal to the head of navigation on the Altmuhl, down the latter to the Danube, and by the Danube to Vienna. Continuing down the Danube, one would pass Budapest and Belgrade, and finally reach the Black Sea.

14. Up the Elbe to the mouth of the Havel, up the Havel (part of which is canalized) to Berlin, on up the Havel to the canal which connects it with the Oder; through this canal, up the Oder to the mouth of the Netze, up the Netze to the canal which connects it with the Vistula, through this canal, and up the Vistula to Warsaw.

15. Agriculture and stock-raising; some mining.

16. Coal and lignite (brown coal) are found in the southern part of the country. See products in red.

17. It is located in the midst of a region rich in mineral resources and agricultural products, and is on a navigable river (the Moldau) which is tributary to the navigable Elbe, near whose mouth stands

the great port of Hamburg. The agricultural and manufactured products of the Bohemian Plateau can thus be exported by water from Prague. The city has become a great commercial and industrial center because of these geographical advantages.

18. Iron, copper, salt.

19. Agriculture.

20. It is able to draw more easily on the products and resources of the interior of the country for export and to distribute the imports to the interior cities and towns with less trouble and delay.

21. London, Antwerp, Hamburg.

Page 180. *Map Studies — France*

1. [E, F–4, 5].

2. [J–5, 6, 7].

3. In the Swiss border [K–5].

4. The Alps. Mt. Blanc: 15,780 feet [K–6]. Appendix, p. iv.

5. The Pyrenees.

6. [K–4]. They are forested.

7. See map, p. 161.

8. The portion on the left bank along the boundary between France and Germany.

9. The Rhine, Seine, Loire, Rhône-Saône, Garonne.

10. The Somme, Seine, Loire, Gironde.

11. France is larger than any state of our country except Texas. See Appendix, p. viii.

Page 185. *Picture Study — Paris and its Surroundings*

1. The Seine.

2. Level, with a few hills rising above the plain of the river.

3. The Marne.

4. The Marne is closely associated with some of the bravest fighting in the World War. Twice the Germans nearly reached Paris, but were stopped at the Marne by the Allies.

5. Fourteen.

6. On the western side of the city.

Page 186. *Problems and Review Questions*

1. 180; *161, 182–183.*
2. 180.
3. 181; *182–183.*
4. 181.
5. 181; *161.*
6. 181; F365.
7. 181, 184; *182–183*; F373.
8. 184; *182–183.*
9. 181; F370, F373; *182–183.*
10. 184, 185; *182–183*; F370, F371, F373.
11. 184.
12, 13. 186; *227.*

Page 189. *Problems and Review Questions*

1, 2. *182–183.*
3. 187.
4. 188.
5. F380.
6. 188; F377.
7, 8. 188.
9. 187.
10. Individual answers.

Page 193. *Problems and Review Questions (First Group)*

1. 189; *182–183, 161.*
2, 3. 190; *182–183.*
4. 190.
5. 163.
6. 191; F387; *182–183.*
7. 191.
8. 190.
9. 191, 192, 193.
10. 189; *182–183.*
11. 192; *182–183.*
12, 13. 190.
14. 193; *182–183.*
15. 193.

Page 193. ***Problems and Review Questions (Second Group)***

1. Appendix, page viii.
2, 3, 4. 193; *182–183.*
5. 193.
6, 7, 8. 193; *182–183.*

Page 194. ***Problems and Review Questions***

1. 194; *182–183*; F393.
2. 194.
3. The surrounding mountains rob the winds of their moisture.
4, 5. 194; *182–183.*
6. 194; F392; F394.
7. 194; *182–183.*
8. *161.*

Page 196. ***Problems and Review Questions***

1. 195; *182–183.*
2. 195; F395.
3. 195; *182–183.*
4. 195.
5. 195; *182–183*; F397.
6. 195, 196; F396.
7. Manufacturing will probably increase faster than agriculture, for the area of suitable agricultural land is limited.

Page 197. ***Problems and Review Questions (First Group)***

1. 196; *182–183, 161.*
2. 196; F317.
3. 196; F398. Usually open all winter.
4, 5. 196; *182–183.*
6. 196.
7. 196; *182–183*; F399, F400.

Page 197. ***Problems and Review Questions (Second Group)***

1. 197; *201.*
2. 197; F402. Usually open all winter.
3. 197.

4. 197; *201.*
5. 197.
6. 197; *201.*

Page 200. *Problems and Review Questions*

1. 199; F531, F532.
2. 163; *216.*
3. 198; F317.
4. 198; *201.*
5. 199.
6. Agriculture.
7. 198; *201*; F404, F405.
8. 199, 200; F406, F407.
9. 198; *201.*
10. 200; *201.*
11. 198.

Page 200. *Map Studies — Eastern Europe*

2. The Dvina.
3. The Volga.
4. The Danube, Dnieper, Don.
5. The Vistula.
6. Up the Dvina and the Vichegda rivers to the canal that connects the latter with the Kama River, down the Kama to the Volga, and by the Volga to the Caspian Sea. From Danzig up the Vistula and Bug rivers to the canal that connects the latter with the Pripet, down the Pripet and the Dnieper to Kiev.
7. See red dots on map. The ports located on arms of the Baltic Sea should be included in this list.
8. Through the Black Sea, Bosporus, Sea of Marmora, the Dardanelles, and the Ægean Sea.
9. Warsaw, Budapest, Moscow, Petrograd, Bucharest.
10. The word "timber" appears on map in several places from the Baltic States northeastward to the Ural Mountains. This area corresponds to that part of Europe which is shown on colored relief map as most densely forested.
11. See products printed in red.

12. Chiefly in the Ural Mountains.

13. Yes. Obtained from southeastern Poland and from Rumania.

14. Most of it from the great oil-producing region around Baku, on the western shores of the Caspian Sea; some of it from the other producing centers in the Caucasus Mountains.

15. The most important supplies are in the central plains, south of Moscow, and in the Ural Mountains.

16. Sturgeon.

17. Into the Caspian Sea, since its level is 83 feet lower than that of the Black Sea. See figures under the name "Caspian Sea."

Page 203. *Problems and Review Questions*

1. 202; *201.*
2. 202; F412, F413, F414.
3. 202; *201.*
4. *201.*
5. 202; *201.*

Page 205. *Problems and Review Questions*

1. 204; *208–209.*
2. 204; *216.*
3. 204; *208–209.*
4. Lack of power for manufacturing.
5, 6. 204; *208–209.*
7. 204.
8. 204; *208–209.*
9. Individual answers.
10. 205; *208–209*; F415, F418.

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Page 206. *Problems and Review Questions*

1, 2. 206.

3. The light, porous outer bark of the cork oak.

4. Because it has fertile land, warm climate, and sufficient rainfall for agriculture.

5. 206; *208–209*; F420.

6. 206; *227, 250.*

Page 210. *Map Studies — Mediterranean Sea Countries*

Again a body of water occupies a central and very important position. The Mediterranean Sea has been for centuries a great highway of travel for the people living about its margin. The commercial life on this sea has bound the neighboring countries together, and today the coastal peoples on the margins of the Mediterranean have many interests in common.

Special attention should be given to the meaning of the various purple lines and shadings on this map. They reflect the unsettled conditions in political geography due to the World War.

4. About ten miles. Use scale of miles on map.

5. From the Mediterranean one would sail northward among the beautiful islands of the Ægean Sea to the southern entrance to the Dardanelles. After passing through this narrow strait, bordered by mountain walls, one would come out into the open waters of the Sea of Marmora. Passing through this sea, one would approach the Bosporus, where, on the left, would be seen the towers and minarets of Constantinople. Coming nearer the city and entering the Bosporus, one would see all the boats and other evidences of the busy commercial life of Constantinople. Across the strait from Constantinople would be seen the roofs of Skutari. Passing through the Bosporus, narrower even than the Dardanelles, the open waters of the Black Sea would be reached.

6. By way of the Suez Canal. Leaving the blue waters of the Mediterranean, one would enter the canal, to find it a nearly straight trough through a desert country. Stretching away to the right and left would be the hot, dreary desert sands. At Suez there would be evidences of the busy life of the little city which guards the southern gateway to the canal. Passing the city and sailing on down the Gulf of Suez, one might see, far to the east, the peak of Mount Sinai rising above the surrounding desert.

7. Into the Mediterranean: the Ebro (Spain), the Rhône (France), the Po (Italy), and the Nile (Egypt). Into the Black Sea: the Danube, Pruth, Dniester, and Dnieper rivers.

11. Fruits, olive oil, wines, nuts, vegetables, silks, cheese.

12. The olive oil and the fruits (oranges and lemons).
13. Grain and oil.
14. See export arrows from African ports.
15. Smyrna.
16. Bordeaux, Bilbao, Oporto, Lisbon, Cadiz.
17. North of Lisbon and in the southwest.
18. Mining districts are along the northern and southern coasts; grazing districts in the Meseta; fruit-raising districts along the Mediterranean coast.
19. Wheat, corn, rice.
20. See products in red.
21. See export arrow.
22. Agriculture and stock-raising.
23. See products in red.
24. In northern Africa.

Page 212. *Problems and Review Questions*

1, 2. 207; *208–209*.
3. 207; F425.
4. 207, 210.
5. 207; *208–209*.
6. *216*. The mountains rob the rain-bearing winds of their moisture.
7. 207.
8. Warm climate and good soils.
9. 210, 211.
10. 210, 211; F427.
11. 210. Mulberry tree.
12. 211.
13. 211; *208–209*.
14. 211.
15. *208–209*.
16. 210, 211; *208–209*; F426.
17. 212.
18. 211, 212; F428, F429, F430, F432.
19. 212; *227*.
20. 210.
21. 211, 212.

Page 215. *Problems and Review Questions*

1. 203; *208–209.*
2. 213, 214; F435.
3. 213, 214; *208–209.*
4. 213.
5. 213, 214; *208–209.*
6. Chiefly because industrial development has been retarded by a long succession of wars.
7. 214; F436.
8. 214; F438.
9. 213, 214; *208–209.*
10. 215.
11. Chiefly that the countries bordering the Black Sea may have free communication with the rest of the world by water.

Page 216. *Comparative Map Studies — Europe*

1. The blocks of ice in the ocean at the north are icebergs which have floated southward from the frozen Arctic Ocean and from Greenland.

2. An area at the northern end of the Caspian Sea is below sea level but not covered by water. The key to the relief map will enable pupils to find this area.

3. The surface of the Caspian Sea must be below sea level. The teacher should make sure that pupils understand this point thoroughly by asking them to explain the answer clearly.

4. The lakes of Scandinavia, Finland, and northwestern Russia are the result of glaciation. Ask pupils to trace from memory the approximate southern limit of glaciation in Europe. If doubt exists, turn back to Fig. 317, p. 163. After a review study of this figure, have pupils trace the southern limit of the ice-sheets on the relief map.

5. North America has a large number of lakes over its northern portion which owe their origin similarly to glaciation.

6. A comparison of the rainfall and relief maps would lead one to believe that the best agricultural section of Europe is the low plain which extends from southwestern France across Germany and Poland, and into Russia as far as the limits of the rainfall belt of 20 to 40 inches. Pupils should note that southeastern England,

Denmark, Belgium, Holland, and southern Sweden share the advantages of this well-watered lowland plain.

7. One would expect the mountainous countries of Europe to have much water-power: Norway, Sweden, Spain, Italy, Jugoslavia, and Greece.

8. In the extreme north of Europe the air is so cold throughout the year that it can hold very little moisture, and consequently there can be but little precipitation.

9. The westerly winds blowing from the Atlantic Ocean gradually give up their moisture as they blow eastward across the continent. By the time they reach eastern Russia very little moisture remains in the air to be precipitated. The greatest amount of rainfall occurs near the western coast where the rain-bearing winds first encounter the land.

10. The westerly winds bring most of the rain to Europe. Pupils should again be asked to recall the system of the winds of the earth and to note the latitudes of Europe in answering this question.

11. As the temperature decreases with the higher latitudes only the hardiest trees can grow. Still farther north the ground is frozen for many months in the year, and only mosses and lichens can find nourishment in the tundra regions.

12. The warm westerly winds from the Atlantic Ocean, and particularly those from the Mediterranean Sea, encounter the high Alps and are quickly cooled. The cooling forces the winds to give up large quantities of moisture on the slopes of the mountains.

13. On the upper slopes and summits of the higher mountains one would expect to find only the hardiest trees. Above the tree line one would expect to find the hardy grasses, the mosses, and the lichens that are characteristic of the tundra regions. In this case the cold temperatures due to high altitude bring about the same results in vegetation as the cold temperatures of lowlands in high latitudes.

14. Pupils should not simply read and accept this statement, but should supplement it by a careful study of the distribution of the temperate forests in Europe. In places where the forests do not appear, their absence should be explained.

15. The relief map shows that Central Europe has many ranges and groups of mountains that rise above the surrounding plains. These mountains intercept the winds and cause heavier rainfall than the plains receive.

16. The westerly winds that cross the continent north of the Black Sea have been robbed of their moisture in their long journey across the land surface, and so have little rainfall to give to the area north of the Caspian Sea. Those winds that blow across the Black Sea, gathering moisture from its surface, are forced to give it up on the western and southern slopes of the Caucasus Mountains. For this reason they too have little moisture to give up on the shores of the Caspian Sea.

17. Pupils should be able to reason out the relation of altitude to tree growth and so reach the conclusion that the "barren mountain slopes" shown on the relief map, which lie in the well-watered portions of Europe, owe their lack of forestation to their high altitude. Ask the pupils to name the more important mountain ranges from the relief map and to state whether they are old, worn-down mountains or young, rugged mountains. Reference to the physical map on p. 161 should be made only for the purpose of verifying the answers if doubt arises in the pupils' minds.

18. This question will be partially answered in working out Question 17. A comparison of the rainfall map with the relief map will show that the plateau of Spain is treeless except along the rivers, because of aridity. Similarly, in the region north of the Black and Caspian seas tree growth is prevented by lack of sufficient rainfall.

19. As the pupils read this statement, have them follow it in detail on the map and try to make sure that they visualize accurately these winter conditions. Ask them to turn to Fig. 531, p. 268, and, by studying the isotherms that cross Europe, to estimate the southern limit of snowfall in Europe.

20. The population map shows clearly, upon comparison with the relief map, that more people live on the plains than on the uplands and mountains in Europe.

21. The lowlands offer an abundance of level or gently rolling land for agriculture and most of it well watered. Also communication and travel are easy because of the lack of mountain barriers, and therefore commercial relations are easily maintained between the different communities and countries.

22. Reference to the relief map shows that the strip of country between Venice and Milan lies in the valley of the Po, a rich, river-made plain protected by the mountains on three sides and open to

the sea at the eastern end, — an ideal area for settlement, agriculture, and commerce.

The valley of the Rhine is one of the most important natural routes of travel and trade in the central part of Europe. It lies also in the midst of an area rich in mineral resources (see maps, p. 171 and pp. 182–183). The mining industries and the commercial advantages have attracted large numbers of people.

Southern Germany is rich in mineral resources and possesses soils and climate well suited to agriculture; hence large numbers of people find it possible to make their living there.

23. The area north of the Caspian Sea is below sea level and is very dry. The sea once covered much of this area; the water has receded by evaporation, leaving in its place broad stretches of soil which contains so much salt that agriculture is practically impossible.

Northern Russia and Finland are cold and dry, giving little encouragement to settlement.

The boundary between Norway and Sweden lies in the midst of the highest mountain ranges of the Scandinavian Peninsula. The people naturally gather on the lower slopes on both sides rather than in the high mountains.

24. The industrial centers of Europe have developed for the most part in sections which are near the supplies of coal and iron, as well as other important mineral resources, or at points where raw materials can be easily assembled and manufactured products distributed.

If time permits, ask pupils to take each city which the population map shows as situated in an area having a population of over 250 persons per square mile, and explain its development. The test should be made first without reference to other maps, and then should be verified by turning back to the political and economic maps which show the products of the various areas.

25. In general the plains of Europe are best suited to the support of a dense population, particularly the plains of France, England, Germany, Poland, Hungary, and Rumania, the Po Valley, and parts of Russia. Pupils may be asked to forecast where, in Europe, the population is most likely to increase in the future. This problem should be approached from the purely geographic standpoint, as an exercise in interpretative geography and without reference to the political unrest and unsettled economic conditions arising from the World War.

Page 219. *Map Studies—Africa, Physical Map*

1. At the Isthmus of Suez.

2. The Suez Canal.

3. Pupils should study each river in detail, explaining what parts of the course are navigable. It will be noted that each of these rivers is characterized by navigable reaches alternating with sections of falls or rapids. This unusual feature is clearly shown by the alternating double and single lines which indicate the courses of the streams.

4. The Abyssinian Highlands.

5. The lower course of the Nile passes through the great desert region of northern Africa, where almost no rainfall is received, and hence no tributaries are possible.

6. The Atlas Mountains.

7. Figures showing elevation given on map.

8. The Nile Delta [G–1].

9. Cairo.

10. Compare this map with maps, pp. 122, 126, 161, 232, and 258. This comparison makes it clear that in proportion to its area Africa has less extensive lowlands than any other continent.

11. The Atlas Mountains, the Sahara Tableland, the Congo Basin, the plateaus of South Africa, the Southern Highlands, and the Abyssinian Highlands. In addition to these major regions, note the extent of the coastal lowlands, and the smaller groups of mountains that rise noticeably above the uplands and plateaus.

12. The highest mountains are found in the group of volcanoes which extend from the central part of Kenya Colony into the northern part of Tanganyika Territory.

13. The great lakes are found in the eastern part of the continent in the region of uplands and plateaus.

Page 219. *Problems and Review Questions*

1. 219; A.

2. 222, 225, 228, 229; *227*.

3. 217, 221, 222; F450, F451, F462, F467.

4. 217.

5. 267; A.

6, 7. 217, *218*.

Page 222. *Problems and Review Questions*

1. 220, 221; *218.*
2. 220; *218.*
3. 221; *230.*
4. Hot, damp conditions; 129, 221; *230* and map opposite.
5. 128; *156.*
6. 128, 221.
7. 219, 221.
8. 217, 220; F445.
9. 220, 221; *227.*
10. 221, 222; *227.*

Page 225. *Problems and Review Questions*

1. 222; *227.*
2. 223, 224, 225; *227.*
3. 219, 220, 223, 224.
4. 223.
5. 223; *230.*
6. 225; *227.*
7. 224; F449, F466, F468.
8. 224; F450, F462.

Page 226. *Map Studies — Africa, Political and Economic Map*

1. The red dots indicate the ports, and the names of the countries appear on the map.

2. Because in the north the interior country is a desert, in the central portion of the continent the interior is a tropical jungle, and in the southern part the interior is a dry plateau country. See rainfall map, p. 230, and the colored relief map opposite.

3. The lack of rivers and the fact that those which appear are wet-weather streams (indicated by broken blue lines), and the scattered oases, show that this is a very dry region.

4. The southeastern part. Because this is the part of the continent best suited to white men, and has therefore been developed to a far greater extent than any other portion of the continent.

5. Leaving Cairo, the railroad follows the Nile to Wady Halfa, where it takes a short cut across the desert to Abu Hamed. From there it again follows the Nile to Khartum; thence southward through the grasslands of the Sudan, crossing the Bahr el Jebel, leaving Lake Albert on the east, and turning westward through the tropical forest to Stanleyville on the Congo. From there it follows the upper course of the Congo through the jungle to Kongolo; thence southward across the grasslands of the plateaus of South Africa to Livingstone on the Zambezi. From Livingstone it skirts the eastern edge of the Kalahari Desert and crosses the Southern Highlands to Cape Town. Pupils should refer frequently to map opposite p. 230 in preparing this description.

6. The information printed on the export and import arrows will furnish data for this table.

9. Manufactured articles, for as yet Africa has developed very little manufacturing and must depend upon other parts of the world for these products.

10. Zanzibar. See export arrow.

11. A diamond mine, Kimberley [F–7]; a gold mine, the Transvaal [F, G–7]; a coffee plantation, the coast of Mozambique [G–6]; a rubber plantation, the coast of the Gulf of Guinea or the Congo Basin; a cotton plantation, the lower valley of the Nile; a date grove, one of the oases on the northern edge of the Sahara Desert.

12. Nile, Niger, Congo, Zambezi rivers.

13. Navigation on the Nile is interrupted by a series of cataracts; on the Congo, by Livingstone Falls and Stanley Falls; on the Zambezi, by Victoria Falls. Pupils should turn to map, p. 218, in seeking the answers to these questions. Note that not far upstream the solid blue line in the Niger indicates that navigation is impeded here, probably by rapids, and that the same is true of the Zambezi.

16. Pupils should locate the meridian of Greenwich (0 degrees) and name all countries lying west of it.

17. The railroads and the number of cities and towns would be the best index. By this guide, southeastern Africa and the valley of the Nile would be most densely populated. The Sahara Desert would seem to be the least densely populated part in the north, and the Kalahari Desert in the south. Turn to the population map, p. 230. This shows that our reasoning was correct in the case of the sparsely

populated regions, but that along the coast of the Gulf of Guinea and in the Congo Basin the population is relatively dense. This is explained by the fact that these regions are the homes of large numbers of African negroes. These people, who are accustomed to the discomforts of excessive heat and moisture, are able to live where white men lose their health and energy.

18. Careful study of the map will reveal the names of all the possessions and the countries to which they belong. Note that in the case of the smaller possessions the words or abbreviations indicating ownership are underlined in purple.

Page 228. *Problems and Review Questions*

1. 225, 226, 228; *227*.
2. 225, 226, 228.
3. 225, 226, 228; *230* and map opposite.
4. 226, 228; F467; *227*.
5. 228.

Page 229. *Review Questions (First Group)*

1. 229; *227*.
2, 3, 4. 229.

Page 229. *Review Questions (Second Group)*

1. 229; *227*.
2, 3, 4. 229.

Page 229. *Review Questions (Third Group)*

1. 229; *227*.
2. 229.
3. 221; *227*; F451, F468.
4, 5. 229; *227*.

Page 230. *Comparative Map Studies — Africa*

1. From west to east the equator passes first through the low, hot, rainy coastal belt of French Equatorial Africa, with its tropical jungle, then across the grasslands just west of the main stream of

the Congo River, thence through the tropical jungle of Belgian Congo (the Congo Basin) to the well-watered grasslands on its eastern border, then along the northern shore of Lake Victoria (grasslands), and from there through the semidesert of Kenya Colony to the coast. Following the line of the equator, one would find a fairly dense population through the Coastal and Congo Basin regions, with fewer people in the eastern part of the continent among the drier hills and mountains of Kenya Colony.

2. The relief map shows that the Sahara Desert has very little relief as compared with the mountains on the northwest and southeast, and that, except for the oases here and there, it is a complete desert. The rainfall map bears out the conditions indicated on the relief map by showing that this desert receives less than ten inches of rainfall each year.

A careful examination of the relief map shows that the monotony of the level and rolling desert is broken in a few places by low mountains whose slopes and summits are barren.

The desert contains just one permanent stream, — the Nile. By tracing the course of the Nile to its sources, pupils should be able to understand why this stream, fed from the high mountains of Abyssinia and from the well-watered grasslands of the southern Sudan, is able to maintain an able-bodied flow through the broad stretch of desert.

Wet-weather streams are those whose courses contain water only at the time or directly after rainfall occurs. The mountain areas in the desert cause a small amount of precipitation from time to time, and for a few hours (or days at most) after the rainfall the courses of the wet-weather streams contain water, acting as gutters for the run-off of the rainfall. Their sandy beds, however, quickly absorb the water, and except for a few streams near the coast these wet-weather streams do not reach the ocean, but simply disappear in the sands of the desert.

3. The only inhabitants of the desert are grouped about the oases, the only places where water is available.

4. An oasis is a place in a desert where a spring or springs of water make possible the growth of a little grass and a few trees, thus making a habitable spot in the surrounding waste of sand. Oases are not always so small as children are apt to think them.

In the larger oases the water from the springs is often used for irrigation, and agriculture is carried on.

5. An oasis can be explained by the presence of underground water. Water exists everywhere underneath the land surface of the earth, and at the points in a desert where some of this water makes its way to the surface in the form of a spring it irrigates the sandy waste. The seeds brought by the birds and the winds find at such a spot enough moisture to give them life, and so a certain amount of natural vegetation grows up, making an oasis, or a garden in the midst of the desert.

6. The population map shows small areas scattered through the desert where the population is more dense than in the surrounding country. Comparison with the relief map will show that these areas of more dense population coincide in location with the oases. Ask the pupils to notice the little tongue of population density of 2 to 25 persons per square mile which extends southeastward from Fez in Morocco into the desert, and to identify it on the relief map.

7. Routes of travel in a desert must be laid out from oasis to oasis, so that the caravans may be able to obtain water as they need it.

8. The rainfall map shows that the only area in northern Africa which receives ample rainfall is the northwestern coast, bordering the Mediterranean. A comparison of the relief map, showing the ranges of the Atlas Mountains, and the wind arrows on the rainfall map, gives the clue to this condition. The winds blow from the warm Mediterranean Sea toward the Atlas Mountains both in winter and in summer. Forced to rise as they cross the mountains, the winds become cooled and so give up their moisture.

9. The rainfall on this coast ranges from 20 to 80 inches each year, according to location.

10. A comparison of rainfall and population maps shows that the more densely populated portion of northern Africa coincides almost exactly with the area which receives more than 20 inches of rainfall each year. Pupils should be asked to explain this.

11. In connection with this statement pupils should be asked to recall what they have learned about the width of the continental shelf surrounding the other three continents which have been studied. Turning back to the relief maps and using the scales of miles, ask

the pupils to determine which of the continents possesses the broadest continental shelf and to explain what bearing a continental shelf has on the fishing industry. This will explain why Africa is not noted for fishing enterprises.

12. This question may be answered as part of the arithmetic lesson if the teacher so desires. It can easily be transformed into a problem in fractions or in percentage. The upper map, p. 275, should be studied carefully by the pupils in order that they may acquire a mental image of the comparative sizes of the continents, — a relation more often than not woefully distorted in a child's mind. The teacher should note the statement at the top of the second column, p. 274, regarding this map.

13. Niger, Congo, Zambezi, Nile.

The Niger rises on the northern edge of the tropical jungle bordering the Gulf of Guinea, flows northeastward through the grasslands of French West Africa to the edge of the Sahara Desert, then turns abruptly southeastward, flowing again across the grasslands and through the tropical forest to its outlet at the eastern end of the gulf.

The larger branches of the Congo River rise in the higher grasslands surrounding the Congo Basin and flow through the tropical jungle, uniting to form the main stream. In its lower course the river flows through grasslands, and finally reaches the ocean by crossing the narrow hem of low, hot coastal plain that borders the continent.

The Zambezi rises in the rolling grasslands of the plateaus of South Africa and flows eastward through a well-watered country, finally crossing the narrow, forested coastal plain to the sea. Along its banks, through the region of grasslands, trees are found.

The Blue Nile rises in the young, rugged mountains of Abyssinia, flowing in and out between the rugged mountain ranges, through an area of temperature forest, to its junction with the White Nile. The latter rises in the rolling grasslands of the southern part of the Anglo-Egyptian Sudan, flowing northward to meet the Blue Nile. The meeting of these two streams forms the Nile, which flows northward through the dry, sandy desert. Along its immediate banks is a well-watered oasis, and at its mouth, where it has built a delta, an area of temperate-forest growth is found.

These facts should all be read from the maps by the pupils. Added interest can be given to the answering of this question by asking the class to separate into four groups, each group choosing one of the rivers. The members of each group may then work out from their comparative maps and the maps on pp. 218 and 227 a canoe trip from the source of their river to each mouth, telling not only the nature of the country through which they would travel but what sort of people they should expect to meet, what the industries of the different parts of the country traversed would be, what difficulties they might encounter in the way of waterfalls, lack of food, and other discomforts, about how many miles they would have to paddle, etc.

14. Africa has a much less indented coast line than Europe. Lack of good harbors is the serious handicap that this straightness of coast line entails. Good harbors at frequent intervals are very necessary to the development of commerce.

15. The mountains of Madagascar lie on the eastern side of the island, the side which the winds encounter first as they blow from the ocean toward the land. Because the mountains lie so near the eastern coast they cause the winds to give up their moisture on this side of the island, leaving the western side with very much less precipitation.

16. The winds are the southeast trades. Pupils should note the latitude of Madagascar, turn to Fig. 539, p. 272, if necessary, and thus identify these winds.

17. The great lakes of Africa are located on the eastern margin of the area which receives from 40 to 80 inches of rainfall each year.

18. The tropical forests are found in the Congo Basin, along the west coast from about 15 degrees north latitude to the mouth of the Congo River, and along the east coast from the equator to the mouth of the Zambezi. There is also a strip of tropical forest on the east coast of Madagascar.

Tropical forests develop in regions of low elevation which have excessive heat and moisture.

The Congo Basin, lying on both sides of the equator, is very hot and, having two seasons of heavy rainfall each year, is very moist; hence the tropical jungle.

The west-coast tropical forest extends as far south as the limit of heavy rainfall. Compare rainfall map with relief map.

The east-coast tropical forest likewise coincides with the region of heavy rainfall.

The tropical forest of Madagascar lies along the eastern, or windward coast, where the southeast trades bring warmth and moisture to the land.

Pupils should be asked to explain why the well-watered northwest coast of the continent has a temperate-forest growth instead of a tropical jungle. If the west coast of Africa south of the mouth of the Congo received a heavy rainfall, how much farther south would the tropical forest extend on that side? This question can be answered by a study of conditions on the opposite side of the continent.

19. The annual rainfall in these forests is over 40 inches and in parts over 80 inches.

20. These hot, wet forest regions would be likely to contain rubber trees and the trees yielding heavy timber, such as mahogany. There would be elephants, whose tusks provide the ivory of commerce. The most important products would be those derived from the tree growth, among them resin, oil, and timber. Pupils should be asked to describe the difficulties of obtaining these tropical-forest products.

21. The best routes of travel would be the rivers, for these form the only natural avenues through the thick forest growth.

22. The annual rainfall of the grasslands is from 20 to 40 inches.

23. In the belts of grasslands the chief occupations would be likely to be agriculture and grazing. Pupils should turn to map, p. 227, locate these grasslands on it, and, from the products indicated in red, supplement their answer to this question from the comparative maps. The economic map shows that mining is also an important occupation in portions of the grasslands, — a fact that could not be read from the comparative maps.

24. The coastal region north of the Gulf of Guinea has a tropical forest because of its great heat (due to nearness to the equator) and its heavy precipitation.

25. The forests in the Abyssinian Highlands are due to the rainfall which the height of the ranges causes. Pupils should note that the forests are found on the lower slopes, not the summits, of the ranges. In the same latitude on the opposite side of the continent are the tropical forests. Pupils should understand clearly how the

differences in altitude and rainfall cause tropical forests on the west and temperate forests on the east.

26. Pupils should recall without reference to maps of South America that the Amazon Valley contains a great tropical forest. At this point a comparison of elevation, rainfall, and temperature conditions in the Amazon and Congo basins should be made, in order that pupils may see that similar geographic conditions result in similar types of natural regions and life responses.

27. The prevailing winds in southern Africa blow from southeast to northwest, giving up their rainfall on the eastern coast and leaving the central and west coastal portions dry. Part of this area lies in the horse latitudes, where very little rainfall is received at any season.

28. The larger number of people in Africa live in the valleys of the Nile, Niger, Congo, and Zambezi rivers and along various parts of the coast.

29. The areas of more dense population coincide for the most part with the regions where over 20 inches of rainfall are received each year. Pupils should work out this correlation in detail, making note of the places where the general rule fails to apply.

30. The most striking exception to this general rule is the case of the Nile Valley, which lies in the area of greatest aridity and contains the densest population of the entire continent.

The valley of the Nile is provided with plentiful water for irrigation, because the river is fed from the rain and melting snows of the Abyssinian Highlands. Thus the river makes the narrow trough which borders it a habitable strip of country in the midst of an arid, windy desert. The Nile also forms a natural avenue of commerce from the Anglo-Egyptian Sudan and Egypt to the Mediterranean, making commercial relations with Europe easy. By way of the river the agricultural products of the valley can be shipped away and manufactured products from Europe received. The latitude of the valley is such that the temperature conditions are not unfavorable to the life of white men. It is not strange, therefore, that this valley has become very densely populated.

31. The southeast trades are the most important winds that affect the southeast coast of Africa. In the extreme southeast portion the westerlies reach the continent.

32. The northwestern and southeastern coasts of the continent are the most favorable parts for permanent white settlement. These areas are not excessively hot except for a few months in the summer, and they receive abundant but not excessive rainfall. The conditions are favorable to agriculture, and the climate is one in which white men can live without losing health and energy.

Pupils should be asked to explain what race of people make up the fairly dense populations found in the tropical forests, and why it is unlikely that these regions will ever attract large numbers of white people. In this connection it would be well to review what has been said about the portions of South America which are likely to increase in white population in the future. By such comparisons as these, pupils will gradually gain a knowledge of the general geographic conditions which lead to the development of communities of energetic, progressive white people.

Page 233. *Map Studies — Asia, Physical Map*

1. *Lowlands.* The Siberian Plains are level, comprising grasslands in the southern part, temperate-forest growth farther north, and tundra country in the far north. The Lowland of Turan is also level but is made up of desert and semidesert country. The level plain of the Indus is very dry and has only desert vegetation; the plain of the Ganges to the east is a level country covered with grass. The lowland of Mesopotamia is level and has only the vegetation that can thrive under semidesert conditions. The level lowlands of Siam consist chiefly of grasslands, but bear temperate forests in some parts and tropical forests in other parts. The Plain of China is broken by groups of hills in some places, and supports a growth of temperate-forest trees. The Manchurian Lowlands are also broken in places by hills; in the central portion, where the surface is most level, there are grasslands, while on the slopes of the hills and mountains there is a temperate-forest growth.

Uplands and plateaus. The Plateau of Arabia has a few groups of mountains rising above the general level and is characterized by desert vegetation. The Plateau of Iran has much more pronounced mountain ranges, and in the lower portions has semidesert vegetation. The Plateau of India is broken by mountain ranges of no great

height and has grasslands and temperate forests, the latter in the higher parts. The Plateau of Tibet has mountain ranges and almost no vegetation, being a complete desert. The Plateau of Turkestan is level and without vegetation except for a few oases on its southwestern margin. The Zungarian Basin is level and has the vegetation that can find life in a semidesert. The Desert of Gobi is very level and has no vegetation. The Plateau of Mongolia has a few mountain ranges which break the level surface, and is without vegetation except in the places where oases occur. The East Siberian Uplands are somewhat mountainous, with broad lowlands along the rivers; except for the higher mountain ridges they are covered with a temperate-forest growth.

Old, worn-down mountains. The mountain region in the northeast which comprises the Stanovoi, Yablonoi, and Sayan Mountains is a very rough country, dissected into many mountain ranges with intervening valleys. The valleys support a temperate-forest growth, while the crests and ridges of the mountains are barren. The East China Highlands comprise a rolling, hilly, and, in some places, mountainous region. The lower slopes of the mountains and the valley areas have temperate forests.

Young, rugged mountains. In Anatolia these mountains have a temperate-forest growth on their lower slopes and in the intervening valleys. Those that surround the Plateau of Iran are barren. The region including the Tien Shan, Pamir, Hindu Kush, Karakoram, Himalaya, and Kuenlun Mountains is characterized by barren conditions. The Altai Mountains have temperate forests on their lower slopes and in the valleys. The mountain region between the plateaus and the East China Highlands have temperate forests on their lower slopes and in the valleys in the northern parts, and tropical forests in the valleys in the southern part. The crests of the Great Khingan Mountains and their western slopes are bare; the eastern slopes are covered with temperate-forest growth. The mountains of Kamchatka are similar to the Great Khingans. In Japan and Korea temperate forests are found in most parts of the mountains except on the higher slopes and peaks.

2. Compare this map with the physical map of Europe, p. 161. The Central Plains of Europe extend into Siberia and the Lowland of Turan; the young, rugged mountains of the Balkan Peninsula

extend into Anatolia; the mountains of the Caucasus region extend southward to the Mesopotamian Lowland. Pupils should note these relations carefully and remember that in reality Europe and Asia form one great continental mass.

3. The Japan Islands, the Philippine Islands, and the East Indies.

4. The Aleutian Islands (see northeast corner of map). They belong to the United States.

5. The Philippine Islands, where he died.

6. Marco Polo. See Appendix, Plate A.

7. To answer this question pupils should study Marco Polo's route carefully and then trace it on map, p. 232, and map opposite p. 256. Starting at the northeastern end of the Mediterranean Sea, he traveled through the Taurus Mountains to a point near the source of the Euphrates River, then turned southward and traveled through the Lowland of Mesopotamia to the Persian Gulf. Embarking there, he sailed through the gulf, landing on the Persian shore at the Strait of Ormuz. Crossing the dry Plateau of Iran and the mountains that border it, he made his way through the mountainous regions of the Hindu Kush and the Karakoram to the Plateau of Tibet. Skirting the northern margin of the plateau, he crossed the Kuenlun Mountains and the Tsaidam Basin and reached the Desert of Gobi. Passing north of the northward bend of the Hwang River, he crossed the Great Khingan Mountains and reached Peking and the Yellow Sea. The tracing of this route on the relief and vegetation map shows that Polo's route took him through the most hazardous and uninviting portions of Asia, chiefly the high, rugged, barren mountains and the deserts.

8. [J, K–5, 6].

9. Salt, because the rivers flow into it and none flow out of it.

10. Their navigability makes them useful avenues of travel during the warmer months, when they are not frozen over.

11. The Ural Mountains, the Siberian Plains, the East Siberian Uplands, and the Stanovoi Mountains.

12. The Tien Shan, the Hindu Kush, the Himalayas, the Karakoram, and the Kuenlun Mountains.

13. The plateaus of Arabia, Iran, Tibet, East Turkestan, and Mongolia. The Zungarian Basin and the Desert of Gobi may be included in this list, although their names do not happen to include

the word "plateau." Pupils should familiarize themselves with these regions by identifying them on map opposite p. 256 without referring to a map bearing their names.

18. Figures given on map.

19. Yes. The Caspian Sea and the land bordering it. Use key to the map. Note also the Lukchun Depression [H–4].

20. Pupils should learn to locate this lake without reference to a map showing its name, and should notice that it is not the largest body of inland water in Asia, but the largest *fresh-water* body.

21. Mt. Everest in the Himalayas [G–6]. The Plateau of Tibet [G–5].

Page 235. *Problems and Review Questions*

1. 234; *232, 256.*
2. 234; F532, *232, 256.*
3. 234; F532, F533.
4. 234.
5. 234; *256, 275.*
6. 274.
7. 234; *256, 232, 275.*
8. 234.

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Page 236. *Map Studies — The Near East*

Maps that show a single continent or country often fail to give a correct idea of the meeting places of continents. This map, p. 237, shows that the Near East includes parts of Europe, Asia, and Africa. This part of the world, which has long been the center of interest in the study of early civilizations and the beginnings of the Christian religion, now commands special attention because of the unsettled commercial and political problems associated with the recent establishment here of many new countries.

1. This can be done by studying the map carefully. The names of the countries are given, and the political boundaries are shown in purple.

2. Because except for the Caucasus Mountains and the rim of the peninsula of Anatolia it is an area of light rainfall. See map, p. 256, showing rainfall.

3. From the mountainous region that is continuous with the Caucasus. These mountains receive more rainfall than the surrounding regions, and thus supply the water for the larger rivers. The most striking examples are the Tigris and Euphrates rivers, which rise in the mountains of Armenia and Kurdistan. Their case is similar to that of the Nile, which rises and receives its waters from the Abyssinian Highlands, and whose lower course is through a barren desert. Another example is the Amu River, which flows into the Aral Sea. The map, p. 232, shows that it rises in the high mountains of the Pamir, and map opposite p. 256 shows that its lower course is in the midst of a desert region. Pupils should consider what it means to the people of these deserts to have the mountain-fed streams to provide them with water for drinking and for irrigation. It is the streams that make life possible in the deserts.

4. They disappear into the desert sands. Their water is gradually lost by evaporation and by the seepage through the porous sands.

5. Most of the people seem to live near the coasts. Reference to map showing population, p. 256, shows that this statement is true with the exception of the long, narrow tongue of population density of 25 to 125 in Persia, inland from the Persian Gulf. This area of denser population is explained by a study of the rainfall and relief maps which show that here is an area which receives from 10 to 20 inches of rainfall, while the coastal region on which it borders receives less than 10 inches, and that instead of having semidesert conditions it has grasslands and temperate-forest growth. The density of population around the shores of the Mediterranean and Black seas is explained by the commercial advantages of these locations. From the southern end of the Caspian Sea westward the population density corresponds very closely with the distribution of annual rainfall, in most places the larger number of people being found where the most rainfall is received. The population is least dense in the interior of the Plateau of Arabia, where the complete desert conditions prevail.

6. The more densely populated areas are in the rough mountain regions, where railroad-building is difficult. Furthermore, the larger

number of people live on or near the coasts, and transportation is carried on largely by water. The plateau areas are so sparsely populated that there is no great demand for railroads.

7. Chiefly by horseback or by camel caravan. The camel caravan is the usual method of travel for long journeys across the deserts.

8. Such settlements can take advantage, for their water supply, of the streams that drain the mountain slopes. In an arid country, such as most of the area covered by this map, even a small stream is a great blessing to the people. Furthermore, these settlements have the advantage of the protection of the mountains at their backs and yet are accessible from the more level areas toward which they face.

9. Chiefly agriculture and stock-raising; pearl fishing in the Red Sea and the Persian Gulf; some mining in the mountainous portions, where coal and metal ores are found; the production of oil around the Caspian Sea.

10. The water space on this map is not large enough to allow the introduction of a large number of export and import arrows, but pupils should be able to reason accurately regarding the products of the Near East that reach the United States. The chief products are dates and figs, pearls, caviar (the roe of the Caspian Sea sturgeon), coffee, and Persian and Armenian rugs.

11. Not for a long time at least. The people are backward, and the climate and resources of the region as a whole are not favorable to the support of a large industrial population. In the future, perhaps, the combination of the coal and iron of the highland regions with the cotton raised in the lowlands and valleys and the wool from the sheep of the mountains and plateaus may lead to the development of the textile industries. Before this can happen, however, the people must become more progressive and foreign capital must be obtained.

12. [C, D–4].

Page 238. *Problems and Review Questions*

1. 235.

2. 235, 236.

3, 4, 5. 235.

6. 235, 236.

7. 236. Stable governments.
8. F474.
9, 10. 235.
11. 233; *237*.
12. 236.

Page 239. *Problems and Review Questions*

1. 238, 239; *256*.
2, 3. 238.
4. 239.
5. 238, 239; *237*.
6. *237*.

Page 241. *Problems and Review Questions*

1. 240; map opposite 256.
2. 240, 241; *256*.
3. 240, 241; *250*.
4. 240.
5. 241; *250*.
6, 7. 241.
8. 240; *250*.
9. 241.
10. 240, 241.

Page 245. *Problems and Review Questions*

1. 242, 299.
2. 279, 299, *247*; B.
3. Individual answers.
4. 243, 279; F489.
5. 299; *247*.
6. B.
7. 244; *247*.
8. 243; *247*.
9. Appendix, p. x; *247*.
10. 244; *247*; F491.
11, 12. 243; *247*.
13. 243; F489.

14. 242, 243; *247*.
15. 243.
16. 244, 245; *247*.
17. 242, 243; F487.

Page 246. *Map Studies — The Far East*

1. This list can be made by studying the red dots for seaports and the purple boundary lines.

2. Silk, silk goods, copper, tea, chinaware, and rice. Rice, tea, and raw silk are products of agriculture. Raw silk is included in this list because it depends fundamentally on the cultivation of the mulberry tree which furnishes the food for the silkworms. Silk goods and chinaware are products of manufacture.

3. Cotton, wool, hides, skins, silk, tea, leather, matting, fireworks. The last three are products of manufacture; the others are products of agriculture. Pupils should explain how wool, hides, and skins are products of agriculture.

4. The Yangtze and its larger tributaries (the Han, Hsiang, and Kan rivers) in China proper; the Amur and Sungari rivers in Manchuria.

5. Tientsin, Hwaianfu, Chinkiang, Soochow, and Hangchow.

6. The Yangtze and its tributaries form a natural system of east-and-west highways of transportation and travel. There are no great navigable rivers flowing from north to south, and therefore railroads have been built to meet the needs for transportation in these directions.

7. From the fact that Manchuria lies on the eastern side of a great continental mass and in the belt of the westerly winds, one would judge that it probably has hot summers and cold winters. From the distribution of highlands and lowlands one would think that the eastern portion would be well watered, while the western portion would be much drier. The distribution of products (cattle in the west and wheat in the east) would bear out this supposition. Reference to rainfall map, p. 256, proves that this is true. Mongolia would suffer extremes of heat and cold for the same reason that was given for Manchuria. The products shown on the map (chiefly live stock) and the name "Desert of Gobi" in the southeastern part would indicate that it is a very dry land. Verify this by map, p. 156.

From its latitude and products (particularly rice, tea, and silk) one would judge that Japan has warm temperatures, — warmer than the mainland of China in the winter season on account of the tempering effects of the surrounding ocean. Because the islands are entirely surrounded by water one would expect them to receive an ample amount of rainfall, for winds from any direction would blow from sea to land and, upon being forced to rise by the mountains of the islands, would precipitate their moisture.

8. One might see any or all of these activities in either China or Japan.

9. To Nagasaki in Japan [J–6].

10. Wool. See import arrows to Japan.

Page 249. *Problems and Review Questions*

1. 246. To learn more of Western civilization.

2. 246, 248, 249; F497, F498, F499, F500, F502.

3. Greater development of industrial life to support the dense population.

4. 246, 248.

5. 248; F503, F504; *247*.

6. 234; *256*.

7. 249; *247*.

8, 9. 248.

Page 251. *Map Studies — Asia, Political and Economic Map*

1. This list can be made by studying the red dots which indicate seaports, and the political boundary lines shown in purple.

2. India, Japan, China, Siam, Straits Settlements, Java, Ceylon.

3. See information printed on export arrows.

4. Tea and silk from China and Japan; tin from the Straits Settlements.

5. Calcutta.

6. The usual route is through the Mediterranean Sea, the Suez Canal, and the Red Sea to the Indian Ocean; thence to ports of India, and through the Malakka Strait and the South China Sea to the ports of China. The teacher should see that pupils understand clearly the significance of Appendix, Plate B, especially the fact that

the width of the brown bands indicates the comparative bulk of commerce passing over each route.

7. That it is very dry. Camels and sheep are animals which can be raised in drier climates than those in which most live stock thrives. One would expect to find wandering, or nomadic, populations in the arid plateaus where these animals are raised and in the East Siberian Upland.

8. Because the only available water of the region is usually found near the foot of the mountains, where the streams from the highlands reach the sandy deserts. The mountain slopes are the places where rain is most likely to fall, and the temperatures even a few hundred feet above the desert are more comfortable than those of the desert.

9. India. The development of India by the British has put that country far in advance of China in industrial growth and commercial facilities.

10. Because so much of it is sparsely populated and because most of the more densely populated nations are backward in their development.

11. Along the western part of the route are the rich plains which offer wonderful advantages for the raising of wheat and other grains. Along the eastern part are rich resources of coal, iron, gold, silver, and other minerals. As the supplies in other parts of the world become exhausted this Siberian storehouse of mineral wealth will be extensively developed.

12. India, China, and Japan. These large amounts of exports and imports would only be possible to and from densely populated countries. The population map, p. 256, shows that Java is also among the most densely populated parts of Asia. The possibilities for raising sugar and coffee on a large scale in this island have attracted large numbers of people.

13. Pearls, from the Red Sea, the Persian Gulf, the Arabian Sea, and the waters surrounding the East Indies; whales, from the Bering Sea and the Sea of Okhotsk; spices, from the East Indies; rubber, from Burma and the Malay Peninsula; furs, from northern Siberia; dates, from Arabia and Persia.

14. Siberia, China, western Turkestan, Khiva, Bokhara, Mesopotamia, India, Siam, and Indo-China.

15. See export and import arrows on map.

20. The Philippine Islands.

21. This question and the last one should be answered individually by each pupil. From the reasons given for the choices the teacher can judge to what extent the pupils have absorbed the significant points in the study of Asia. If the pupils are interested in only the primitive or curious features of life in Asia, the teacher should make a special effort to review and explain the modern features and to point out that many parts of Asia are already very far advanced in industrial and commercial life.

Page 251. *Review Questions*

1. 249, 251.

2. 249, 251; *250.*

3. 234, 249; *256.*

4. 249.

5. 251.

Page 254. *Problems and Review Questions*

1. *256.*

2. 253.

3. *250.*

4. 234, 252; *256.*

5. 234, 252.

6. 252, 253; *250.* On these pages and on the map find where the cooler regions are.

7. 253; F509.

8, 9. 252.

10. 253; *250.*

11. 252; *250.*

12. Individual answers.

Page 255. *Review Questions*

1. 255; *250.*

2. 233, 255.

3. 234, 255.

4. 255.

5. 255; *260.*

Page 255. *General Review for Asia*

1. 240; *250.*
2. Warm, moist climate; abundance of water for irrigation.
3. 231, 240; map opposite 256.
4. 238, 239; *237.*
5. 235, 236; *237.*
6. 243.
7. 252.
8. 235, 248; F497.
9. 248.
10. 240, 244, 245.
11. 240, 245, 239.
12. 253; F510.
13. 231, 233.
14. 238, 244.
15. *250.*
16. *232, 256* (both maps).
17. 231, 241, 243, 246, 249.
18. 231, 233 (draw conclusions from the regions described), 234 (draw conclusions from the climate), 238, 239, 245; *256* (both maps).
19. 234, 242, 252.
20. 234; F531, F532.
21. 252; *232.*
22. 233.
23. *232.*
24. 242, 243.
25. 235, 239.
26. 236, 238, 244, 249, 251, 252, 255.
27. 255.
28. 231, 233 (draw conclusions from surface conditions), 238, 239, 240, 244.
29. 240, 241.
30. 248, 299; *250*; B.
31. 251; *250.*
32. 231, 236, 241, 242, 246, 247.
33. *73, 76*; B.

Page 256. *Comparative Map Studies — Asia*

1. The relief map shows that even in summer the Arctic Ocean is filled with floating ice, making navigation difficult and dangerous.

2. This question should be easy for pupils to answer if they have thoroughly understood the similar questions on North America and Europe. The Arctic Ocean should show much more ice, the ports of the eastern coast should be shown as frozen over as far south as the 45th parallel, and a covering of snow should be indicated over a large area of northern Asia. The higher mountain ranges, even south of the snow line for the plains, would be covered with snow and ice.

A study of Fig. 531, page 268, such as was suggested in the case of North America and Europe, should enable pupils to locate approximately the southern limit of snowfall in Asia.

3. One would expect to find good fishing conditions in the Sea of Okhotsk, around the Japanese islands, in the Yellow Sea, and southward along the eastern coast of the continent. Here the continental shelf is broad, as indicated by the light color which shows where the water is less than 500 feet deep. These shallow-water conditions, especially in the cooler regions, provide for an abundance of sea life of edible varieties.

4. The northern part of Siberia lies north of the arctic circle, where the temperatures are cold throughout the year, and where there is little rainfall. Such climatic conditions render tree growth impossible, and only the hardy grasses and mosses can survive the rigorous cold and aridity. Pupils should be asked to recall the distribution of tundra in North America and Europe, noting the similarity of temperature and rainfall conditions.

5. Tibet, Mongolia, and much of Central Asia lie in the belt of the prevailing westerly winds. These winds have passed over Europe and western Asia before reaching the regions in question, and have been robbed of their moisture to such an extent that they have little to give up when they reach these parts of the continent.

6. The fact that the relief map shows a tropical-forest area south of the Himalayas and over the lower elevations of the southeast part of the continent and the islands bordering it should reveal the answer, — that the heaviest rainfall occurs in these parts of Asia.

7. The arrows on the rainfall map show that the coast winds in the northern summer blow toward the land. Pupils should turn to Fig. 532, p. 268, and note the large area of great heat which lies over central and southern Asia during the summer.

8. In the winter the coast winds blow away from the land. Turning to Fig. 531, p. 268, pupils should note that during the winter the area of greatest heat migrates far southward and does not touch the continental portion of Asia. Comparison of the isotherms in Figs. 531 and 532 shows that central Asia suffers from great extremes of heat and cold.

The coast winds which reverse their direction from summer to winter as the heat belts migrate north and south are called monsoons. The subject of monsoon winds is one which teachers should cover thoroughly with students at this point. In Asia it is the monsoon conditions, rather than the conventional system of earth winds, that determine very largely the climatic conditions.

9. The population and rainfall maps show clearly that most of the people live in the wet countries.

10. The dense populations are found mainly on the lowlands, although parts of the Plateau of India and the East China Highlands contain large numbers of people. The most notable exception to this rule is found in the southern islands of the Japanese Empire. These islands are mountainous but very densely populated. Pupils should be asked to explain why this is true.

11. To support a large population a region must have climatic conditions favorable to agriculture, good soils, and adequate means of communication and trade with other groups of people. These are fundamental necessities. Ask the pupils to name other factors that make dense populations possible. Japan is an excellent example of the way in which an island environment, limited in area but with excellent means of communication with other parts of the world, can support a dense population. At this point a comparison could well be made between the British Isles and the islands of Japan. Comparisons and contrasts should be drawn between the two island powers in regard to latitude, climate, relief, accessibility to other nations, density of population, etc. Pupils should, through such a study, be able to understand clearly that the greatest asset of each of these groups of islands is its ease of communication by water

with other nations. This will explain why England's strength has always been felt upon the seas and why Japan feels the necessity of building a large navy.

12. This belt can be identified by a study of the key to the population map. Reference to the rainfall map shows that it runs through the area that receives somewhat greater rainfall than the plains to the north and the plateaus to the south. In such a region agriculture can be carried on by dry farming or irrigation. An added explanation, and one of great importance, is found by studying the route of the Siberian Railroad from the map, p. 250. Careful comparison of this route and the population belt under discussion shows that the latter coincides with the area served by the railroad. Pupils should understand how a railroad attracts population in an isolated and remote region such as this.

13. In general it may be said that the lands which receive less than 10 inches of annual rainfall support a very sparse population, — less than two persons per square mile. The exceptions in Asia are along the seacoasts of Persia, Arabia, and Baluchistan, where commercial advantages to a certain extent offset the disadvantages of aridity and attract enough people to raise the population density somewhat.

NOTE. On account of the size of the maps on p. 256 fewer comparative map questions and studies have been formulated than the author would wish. It is suggested that the teacher should formulate others for the class, using the comparative map studies for the other continents as suggestions for types of problems.

Page 259. *Map Studies — Australia and Islands of the Pacific, Physical Map*

1. The Dutch and later the English. See Appendix, Plate A. Cook was an English explorer.

2. On the eastern coast the mountains that run from north to south are a barrier to travel into the interior; most of the approaches to the interior from the northern, western, and southern coasts are characterized by very dry conditions, making exploration difficult, and navigable rivers, which are the explorer's best routes of travel, are lacking. Only one natural opening leads to the interior, namely, the navigable course of the Darling River, and this river also runs

through a dry country. Furthermore, it does not penetrate the heart of the continent. For these reasons explorers have found Australia a very difficult continent to enter.

3. The map, p. 260, shows that it is possible to cross from east to west by railroad. Most of the trip from south to north would have to be made on horseback. One would naturally plan to make this transcontinental trip in the eastern part of the continent, in order to avoid the desert of the interior and western parts.

4. By aëroplane. Travel by aëroplane would be much faster than any other means of locomotion, and would do away with most of the dangers and hardships of crossing and exploring the great interior deserts. Because the distance could be covered so much more quickly it would not be necessary to carry such large supplies of food and water. The broad stretches of level plains and desert would offer comparatively safe landing places, and detailed studies of special areas could be made on foot. The explorers would have to take special care to have an adequate supply of gasoline for all emergencies. Pupils will enjoy making imaginary plans for such a trip of exploration, mapping out the route, selecting their supplies, and anticipating the interesting things that might be seen and the discoveries that might be made.

5. In the East Australian Highlands, which receive abundant rainfall.

6. Because the rainfall is so slight that there is not enough water to feed any large rivers.

7. Somewhat less than half. Note where the tropic of Capricorn crosses the continent.

8. In the south-temperate zone.

9. Yes. See marginal reference showing latitude of Cape of Good Hope.

12. On the eastern and northern coasts. The northern coast and the eastern coast north of the tropic of Capricorn are normally in the belt of the southeast trade winds, which cause rainfall as they encounter the mountains and hills of the coast. In the southern summer, when the wind belts move southward with the heat equator in this part of the world, these coasts are under the influence of the northeast trades, which, on the northern coast, become northwest winds, or monsoons. Because they blow from sea to land they are

rain-giving winds. South of the tropic of Capricorn the eastern coast receives the southeast trades as the wind belts move southward with the increasing heat of the spring and early summer and as they move northward with the coming of the cooler temperatures. During these seasons, therefore, this southern portion of the eastern coast receives much rainfall. If there were no mountains on the eastern side of the continent, the rainfall would be very much less. The precipitation is caused by the rising and cooling of the winds as they encounter the mountains.

13. 7336 feet. Figures given on map [E–5].

14. The Great Australian Gulf.

16. Judging from this map alone, and without reference to the climatic conditions which were worked out briefly in answering question 12, one would expect the Great Plains and the western coastal plain to be the most densely settled. Reference to population map, p. 256, shows that this inference is not correct. The density of population in the case of Australia is determined largely by the amount of rainfall rather than by the relief. In connection with this question it would be worth while for pupils to recall the natural regions of other continents and to give other examples of plains that are not densely populated on account of climatic handicaps.

17. After making the comparison with other continents suggested above, pupils should formulate in their own words the general geographic principles governing the distribution of people. This effort will lead to an intelligent, reasoning answer to this question.

Page 261. *Map Studies — Australia and Islands of the Pacific, Political and Economic Map*

1. Gold, coal, copper, silver, lead, tin. See products in red.

2. In the mountains and the plateau.

3. To the United States and to countries of Europe.

4. The western part. To India, China, and countries of South America. See export arrow from Newcastle.

5. Chiefly in the Great Plains and the plateau of Australia. In New Zealand, on both of the islands.

6. Because there is so little rainfall in the interior that life is very difficult and the region is most unattractive to settlers.

7. Stock-raising.

8. Shown by red dots.

9. In the southwest and southeast extremities of the continent there are well-watered plains where fruit-raising can be carried on successfully. The nearness of the ocean tempers the climate and reduces the danger of killing frosts.

10. The Murray, its main tributary the Darling, and several other tributaries to the Murray. Shown by double blue lines.

11. In answering this question pupils should turn to Appendix, Plate B, and study the different routes from the United States to Australia and New Zealand, noting the approximate length of time that travel over each route would require.

12. Mining, wool-growing, farming, fruit-raising.

13. Nutmegs, the island of Amboina in the Dutch East Indies; coconuts, New Guinea; rubber, Celebes; sugar cane, Java; pearls, off the western coast of Australia or in the bays of the island of New Guinea.

14. Sugar, coffee, nutmegs, spices, rubber. See export arrows and products of the islands.

15. In the West Indies, the northern part of South America, and the equatorial parts of Africa.

16. Principally with the United Kingdom, the United States, and countries of South America. See export arrows.

17. Great Britain, Netherlands, France, Japan, and the United States.

On this map the British islands belonging to the *Gilbert and Ellice Islands* government are separated by the purple boundary lines from those belonging to the *Solomon Islands* government. Similarly, the islands belonging to the *Fiji Islands* government are indicated as a separate government.

The *New Hebrides*, under joint British and French protectorate, are separated from the British possessions on the one hand and from the French possessions on the other.

The purple line across the southeast corner of the map separates the islands belonging to the Commonwealth of Australia from those belonging to the Dominion of New Zealand.

The purple line through Bass Strait separates Tasmania from Victoria, indicating that the islands (Kings, Flinders, and Furneaux) belong to the government of the former.

The northeastern part of New Guinea and the neighboring islands (formerly German possessions) are set off by themselves. They are now under the control of Australia.

North of the equator the purple lines indicate the groups of islands belonging to the United States, Netherlands, and Japan.

18. These capitals are indicated by a dot within a circle, except in the case of the capital of New Zealand, which is shown by a star.

19. [E–5]. Other territories of Australia are Northern Territory and the Territory of Papua in New Guinea.

20. Johannesburg, Sydney, and Valparaiso.

21. Adelaide, the capital of South Australia, and Yokohama, in Japan, are in almost the same longitude; therefore it would be noon at almost the same time in both cities.

22. Manila. Compare its longitude, indicated by dot in northern margin of map, with that of Perth.

23. Yes; that part which lies east of the meridian of 180 degrees. Pupils should remember that longitude is reckoned by degrees east and west from the meridian of Greenwich, England, which is numbered 0 degrees. All longitude westward from the 0 meridian to the meridian of 180 degrees is called west longitude. All longitude eastward from the 0 meridian to the meridian of 180 degrees is called east longitude. Since the meridian of 180 degrees is the dividing line between east and west longitude, it is clear that the easternmost part of this map lies in west longitude. Reference to Appendix, Plate B, will help to make this clear.

24. By tracing the courses indicated by the arrows and the lakes two river systems can be distinguished. Use the map on p. 258.

25. [G–2].

Page 262. *Problems and Review Questions*

1. 257; *258.*
2. Appalachian Highlands.
3. 257.
4. Study position on *258.*
5. 257; F516.
6. 257.
7. 259.
8. 257.

Page 264. *Problems and Review Questions*

1, 2. 263.
3, 4. 263; *265.*
5. 263.
6. 263; *260.*
7. *260.* Use scale.
8. 263.
9. The high mountains receive abundant precipitation in the form of snow. The snow accumulates in the mountains, gradually changes into ice, and slowly moves down the valleys in the form of glaciers.
10. 264.
11. 263.
12. 263, 264.
13. 263.
14, 15. 264.
16. A source of various foodstuffs and raw products; coaling stations and ship-repairing ports; military importance in time of war.

Page 265. *Comparative Map Studies—Australia, New Zealand, and Neighboring Islands*

1. Good fishing grounds should be found along the northern coast of Australia from Northwest Cape to Cape York, along the eastern coast as far south as Cape Byron, in Bass Strait, and in the Great Australian Bight. These are the areas where the continental shelf reaches its greatest width off the shores of Australia, giving the best opportunities for the development of fish life.

2. The Great Barrier Reef, indicated on all three maps, can be identified by name on population map. This long reef has been built up by the growth of corals. As each generation of corals reaches maturity and dies, another generation grows on the limy shells that the preceding generation have secreted. Thus from year to year the coral reefs grow larger through the death of the old corals and the growth of the new.

3. The extent of the continental shelf (indicated on the relief map by the areas of water less than 500 feet deep) shows that if the land should rise 500 feet, Australia and New Guinea would be

joined and many of the smaller islands would be parts of the mainland. At the same time Tasmania would become part of Australia, and Borneo, Sumatra, Java, and the other Sunda Islands would be joined to Asia. A land connection would very nearly be made between northern Australia and Timor Island.

4. Pupils should answer this question from relief map alone. The presence of tropical forests in the northern part of the continent would indicate that here the heaviest rainfall is received. The temperate forests of the eastern, southeastern, and southwestern coasts would indicate that in these sections also plentiful rainfall occurs. These conclusions can be proved by reference to rainfall map.

5. Most of Australia lies under the influence of the southeast trade winds. These winds, blowing from the ocean, encounter first the highlands which follow the eastern coast, giving up much of their moisture on their eastern slopes. As they move northwestward they become warmer (since they are moving from higher to lower latitudes) and so tend to take up moisture from the earth's surface, thus becoming drying winds and causing desert conditions in central Australia.

6. The greater rainfall occurs on the east coast, because this is the windward coast; that is, the coast against which the prevailing winds blow. Furthermore, the eastern coast has a mountain rim which forces the winds to rise, cooling the air and causing them to precipitate.

7. The colder parts of Australia are in the south, especially in the higher mountain parts. This is because of the lower latitudes of the southern sections. At this point it would be well for the teacher to make sure that all students understand the reversal of temperature conditions in the southern hemisphere, — that going southward in the southern hemisphere is moving away from the equator and hence moving from a warmer to a cooler climate.

8. The Great Plains lie on the leeward side of the highlands that border the coast. The winds, blowing against the eastern slopes from the ocean, give up much of their moisture there and consequently have little moisture to precipitate when they have crossed the mountains and reached the plains.

9. Northern Australia and New Guinea lie near the equator and therefore receive heavy rainfall. Furthermore, northern Australia

and southeastern New Guinea receive the southeast trades; these winds, blowing from sea to land, add to the amount of rainfall.

10. The rainy season on the northern coast of Australia occurs in the southern summer (northern winter), because at that season the northeast trades cross the equator, becoming northwest winds and bringing rainfall as they encounter the coast of Australia.

Pupils should note that the winds in southern winter (northern summer) in this area are from the southeast; these are the normal southeast trades.

The trade winds that cross the equator during the summer season, changing their direction, are monsoon winds.

11. The forest distribution in Australia indicates the areas of heaviest rainfall; the grasslands show where lighter rainfall is received; the desert and semidesert areas show where the least rainfall is received. The fact that in New Zealand all parts of the islands are forested, except the mountain summits, shows that the rainfall is ample in all sections of the Dominion.

12. From the relief map one would select the narrow coastal plain of New South Wales, the Great Plains, the coastal plain of Victoria, and the southwestern end of Western Australia as the parts of the country suitable for agriculture. Reference to the rainfall map shows, however, that a large portion of the Great Plains receives less than 20 inches of rainfall annually, and parts of it less than 10 inches. This would make agriculture impossible except by irrigation. Therefore the most favorable agricultural areas would be the others enumerated above, since these are all well watered.

13. The grasslands of the Great Plains should be well suited to grazing, since stock-raising requires less water than agriculture.

14. The western interior is uninviting to settlers because of its lack of rainfall. Desert conditions are nearly always associated with extremely sparse population.

15. One would expect the population of the eastern and southeastern coastal sections to grow more dense; also that of the southwestern end of Western Australia. Settlement is likely to move westward from the eastern coast into the drier areas of the Great Plains with the extension of irrigated agriculture; similarly, it may be expected to move northward from Victoria into the plains. In all probability settlements will increase along the southern coast

where the narrow strip of country receiving from 10 to 20 inches of rainfall annually borders the Great Australian Bight. The northern coast is likely to be settled much more slowly than the southern coast, on account of the tropical climate prevailing there, which makes life difficult for white people. Pupils should recall the progress of settlement westward in the United States and, arguing by analogy, should be able to forecast this general trend of development in Australia.

16. Comparison of rainfall and relief maps shows that most of the people live in the medium wet portions of the continent. Pupils should have no difficulty in explaining this.

17. Pupils should make this comparison carefully and in detail. In this way they will see more clearly how the natural-region maps in this book, which are really map diagrams, should and can be visualized in terms of relief.

18. To answer this question a careful study of all three maps is necessary. On the South Island of New Zealand the denser population is found on the southeast side, where the lowland is broader and where the rainfall is ample but not excessive. In the North Island, over whose whole extent the rainfall conditions are favorable, the relief is the determining factor in the distribution of people, and the plains will be found to be, in general, more densely populated than the mountains.

In New Guinea the densest population is found on the plains of the southeast part of the island, where the temperatures are the coolest in the island, and where part of the country is free from tropical forests.

19. The wind arrows on the rainfall map indicate that it is the westerly winds which bring most of the rainfall to New Zealand.

20. Similarly, westerlies bring most of the rain to southwestern Australia and Tasmania.

21. New Zealand lies too far south to be affected by the southeast trades. Pupils should note latitude of New Zealand and apply their knowledge of the circulation of earth winds.

22. The larger number of people on the west coast of the continent live in the area which receives the most rainfall. The remainder of the coast is arid and uninviting to settlers.

Page 266. *Map Studies — North Polar Region*

1. Canada, Alaska, Siberia, Norway, Sweden, Finland, Iceland, Greenland.

2. The Arctic Ocean.

3. Nova Zembla, Spitzbergen, Iceland, Ellesmere Island.

4. The Yukon in Alaska.

5. Bering Strait.

6. The ice in the ocean would form a solid mass in most places, and the land surface would be covered with snow.

7. Canada, Alaska, Siberia, Nova Zembla, Norway, Sweden.

8. About 1600 miles. Use scale on map.

9. Nearly 500 miles. Use scale on map.

10. By Peary, April 6, 1909.

11. Peary, Macmillan, Amundsen, Stefansson, Nansen.

12. Nansen. Trace his route.

13. Nordenskjöld. Trace his route.

14. Etah in Greenland; 78° north latitude.

Page 266. *Map Studies — South Polar Region*

1. The scale of this map is about one half that of the map of the North Polar Region; that is, one inch on the South Polar map represents about twice as many miles in distance as one inch on the North Polar map.

2. About 1600 miles. Use scale on map.

3. South America.

4. About 700 miles. Use scale on map.

5. About 2300 miles. Use scale on map.

6. The Antarctic Ocean.

7. About 3500 miles. The greatest diameter is along a line connecting Graham Land and Wilkes Land.

8. It would extend about 800 miles west of San Francisco.

9. Mawson. Note the position of the magnetic pole in 1912 and 1909.

10. Amundsen and Scott.

11. The floating ice around Antarctica would form a much more solid mass. The southern tip of South America and the mountains of New Zealand and Australia would be snow-covered.

13. Punta Arenas in South America; 52° south latitude. It is about 1700 miles farther from the south pole than is Etah from the north pole. Use scale on maps.

14. The north pole is in the midst of a great ocean, most of which is rather shallow and filled with icebergs. The south pole is in a great land mass covered with an ice-sheet thought to be many thousands of feet in thickness.

Page 268. *Problems and Review Questions*

1. 268. Question should be answered from pupils' own observations.

2. 267, 268.

3. 267.

4, 5. 267; A.

6, 7, 8, 9. 268.

10, 11. F531, F532, F533.

12. You could set the lower end containing the mercury in boiling water and mark the point on the thermometer to which the mercury would rise. This would be 212° F. or 100° C. You could set the lower end on a cake of ice and mark the point to which the mercury would drop. This would be 32° F. or 0° C.

Page 270. *Problems and Review Questions*

1. Individual answers. 269.

2. 269.

3. 269. Find longitude of Washington on map, p. 35, and of Paris on map, p. 171. Find difference in longitude between the two cities and then the difference in time.

4, 5. 269.

Page 272. *Problems and Review Questions (First Group)*

1, 2, 3. 270.

4. 270; F538.

5, 6, 7. 270.

8, 9. Individual answers.

Page 272. *Problems and Review Questions (Second Group)*

1, 2. 272; F539.

3. F539.

4. 272.

5. Favorable winds give added speed to both sailing and steam ships.

6. 272.

Page 274. *Map Studies — Rainfall of the World*

1. Asia, Africa, Australia.

2. In Africa (Sahara); Asia (Arabia, Iran, Tibet, Turkestan, Gobi, Mongolia); Australia (Western Plateau). See maps on pp. 218, 232, and 258.

3. In dry regions. See rainfall maps of continents.

4. Near the equator.

5. Such rainfall occurs where rain-bearing winds from the ocean strike the continental masses.

6. Near the margins of continents. Examples are eastern and western North America, southern South America (western side), southern Africa (eastern side), Australia.

7. In mountainous regions. Choose examples by comparing rainfall maps of continents with physical maps showing mountain and plain regions. Note that lowlands near the equator are always wet regions, but that north and south of the tropics of Cancer and Capricorn, respectively, the heavier rainfall occurs in the mountainous regions; for example, the Appalachian Highlands and the Alps.

8. South America, Africa, and Asia.

9. No.

10. From 20 to 80 inches of rainfall.

11. The western half of North America, southern Argentina, Mongolia, Siberia. In general, less than 20 inches of rainfall.

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Page 274. *Map Studies — Oceans*

1. The Pacific Ocean.

2. Almost twice as large.

3. From east to west.

4. The trade winds. See Fig. 539.

5. In the north Atlantic Ocean the general surface circulation is westward from Africa near the equator to the coast of South America and the Caribbean Sea, then northward along the coast of North America and eastward across the northern part of the ocean to Europe, and thence southward. In the south Atlantic Ocean the circulation is westward from Africa near the equator to the coast of South America, then southward, and thence eastward across the southern part of the ocean and northward along the African coast.

6. Clockwise in the north; counterclockwise in the south.

7. Yes.

9. The temperature on the eastern side of the continent averages 61 degrees; on the western side, 57 degrees. See temperature figures on map. On the eastern side the current is warm, moving southward from the region of the equator; on the western side it is cool, moving northward from the region of the frigid zone.

10. The surface temperature off Newfoundland averages 38 degrees; off the coast of Europe in the same latitude it averages from 49 to 59 degrees. The waters off Newfoundland are cooled by the cold Labrador Current. Those in the same latitude near the shores of Europe are warmed by the Gulf Stream Drift.

11. Off the shores of Norway.

12. The Labrador Current.

13. The Alaska Current, a northward-moving branch of the warm Japan Current.

14. Near the equator.

15. From 79 to 82 degrees.

16. It is about the same. Your bath might be a little warmer.

17. 42 degrees.

18. 65 degrees.

19. The southern tip of South America extends much farther south toward the cold Antartic regions than the southern tip of Africa.

Page 281. *Problems and Review Questions*

1, 2. 278.

3, 4. 278, 279.

5. 279.

6, 7. 279; B.

8, 9. 280.

Page 283. *Problems and Review Questions*

1. 281.
2, 3. 282.
4. Individual answers.
5, 6. 282.
7. 283.
8. Draw conclusions from statements on 283.
9. Draw conclusions from statements on 50 and 283, 7, 8, F8, F89.
10. Sum up points from statements on 278, 279, 280, 281, 282.

Page 285. *Problems and Review Questions*

1. F558.
2. Lack of rainfall. *82.*
3, 4. 284.
5. 284; F559.
6. 284, 285.
7. Draw conclusions from statements on pp. 281, 284, 285.
8. 285.

Page 287. *Problems and Review Questions*

1, 2, 3. 286.
4. 286; F563.
5. 286.
6, 7, 8. 287.
9. Draw conclusions from statements on 287.

Page 288. *Problems and Review Questions*

1. 287.
2. 288; F564.
3. 288. Calls also for individual answers.
4. F564; also by tank car and by boat.
5, 6, 7. 288.

Page 290. *Problems and Review Questions*

1. 289; F566.
2, 3, 4. 289.
5. 290.
6, 7, 8. 290.

Page **292.** *Problems and Review Questions* (*First Group*)

1. 290; F566.
2, 3, 4. 290.
5, 6, 7, 8. 291.
9. F566.

Page **292.** *Problems and Review Questions* (*Second Group*)

1. 292; F571.
2. 292. Calls also for individual answers.
3. 292.

Page **295.** *Problems and Review Questions*

1, 2, 3. 294.
4. 294. Draw conclusion from statements made.
5. 294.
6. F576. Individual answers.

Page **297.** *Problems and Review Questions*

1. 273.
2. 273. Draw conclusion from statements made about ocean water.
3. 273, 274, 295.
4. 296.
5. 295, 296.
6, 7. 296.
8. 296, F582.
9. 296.

Page **298.** *Problems and Review Questions*

1. 297.
2. 297, 298. Calls also for individual answers.
3. 297.
4. 297. In these cool, shallow waters the fish find the food on which they live.
5. 297, 298.
6. 298.
7. 297, 298. Draw conclusions from statements made.

Page 300. *Problems and Review Questions*

1, 2. 299.
3. 299; F497, F498.
4. 248, 299; F586.
5. 299.
6. 299; F586.
7. 299, 300.
8. 300; because American inventors were the first to perfect practical methods for manufacturing rubber.
9, 10. 300.

Page 303. *Problems and Review Questions*

1. 300.
2, 3, 4. 301.
5. 302.
6. 301, 302; B.
7, 8, 9. 303.

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